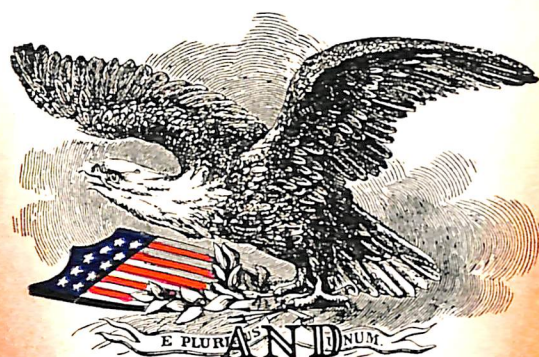


UNITED STATES AT WAR

DECEMBER 7, 1941 ★ DECEMBER 7, 1942

ARMY

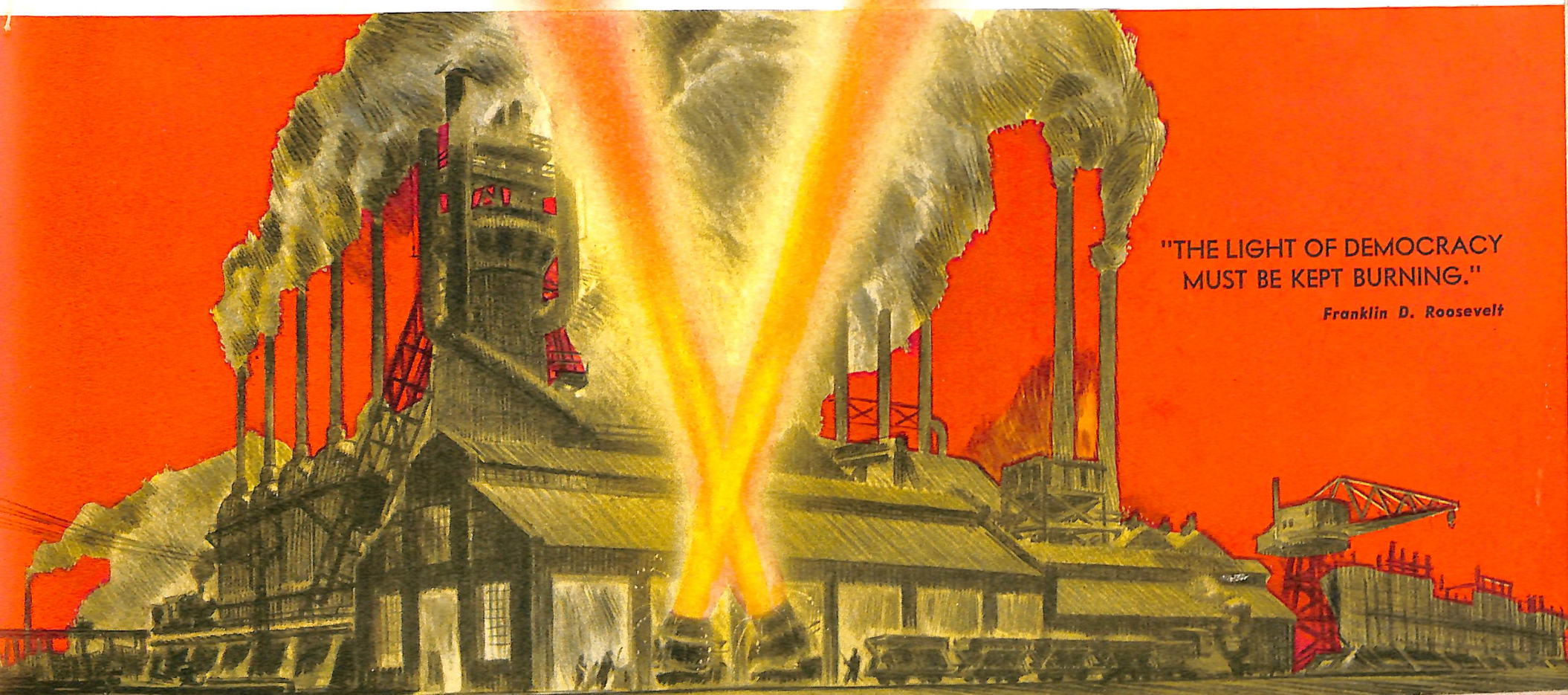
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SEA AND AIR



NAVY

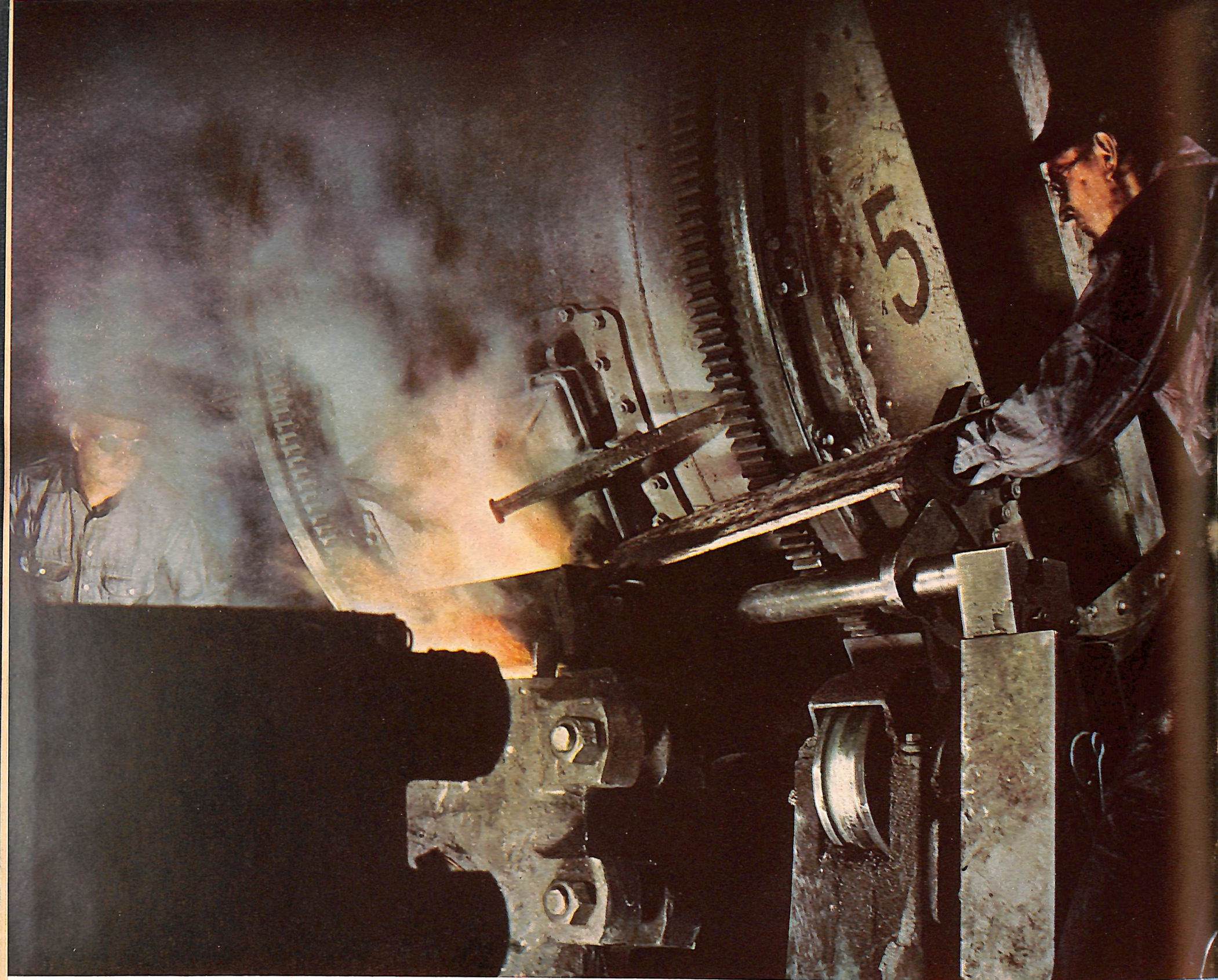
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SINCE 1863

JOURNAL



"THE LIGHT OF DEMOCRACY
MUST BE KEPT BURNING."

Franklin D. Roosevelt



Bitter Brew For Freedom's Foes

We at Bridgeport have not been used to thinking of brass in terms of destruction. But we are used to it now. And it gives us considerable satisfaction to know that what we make will be put to work where it will do the most damage—to the sworn foes of freedom.

For practically all of Bridgeport's production now goes into planes, tanks, guns, ships and other vital weapons. These are instruments of destruction with which America will

blast its way to victory. These are the machines—the deadly, lethal machines—which will spread devastation in the ranks of those who asked for it.

Yes, this is bitter brew that Bridgeport cooks up in huge arc-fired "kettles." And Bridgeport workmen are brewing it fast and furiously. Yet they do not forget to keep the hand steady and the eye clear. For men in the thick of the fight will be driving the tanks

... flying the planes ... manning the ships ... firing the guns in which Bridgeport brass is used. And this metal must be as good as the men it serves. That is why every iota of Bridgeport's skill and experience, as well as every moment of its *time*, is marshalled to the making of brass for Victory.



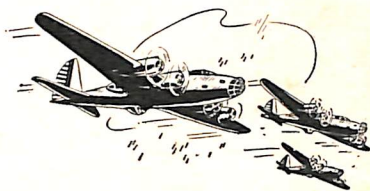
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In times of peace we were preparing for war! Of course not as consciously as you of the armed forces, but with similar results . . . readiness when needed.

When war broke out . . .



we were ready to deliver the finest type of aviation gasoline because in time of peace we had pioneered in the perfection of a revolutionary new process which enabled us to make more and finer gasoline at less cost. Today, our refineries are pouring forth torrents of high grade aviation gasoline.

When war broke out . . .



we were ready with a line of specialized industrial lubricants now invaluable to American production. In many industries these products have reduced waste and increased efficiency to the point where the industrial engineers of Sun Oil Company are known far and wide as "Doctors of Industry."

When war broke out . . .



we were ready with our own shipbuilding facilities—Sun Shipbuilding and Drydock Company—established during the first World War. Here we had developed a unique welding process which enables us to build faster and better ships, quicker and cheaper, to aid America in our fight for Victory.

★ ★ ★

We are proud of our products . . . proud of the men who make them. Trained and toughened in the peace-time battle for business, we eagerly shoulder our assignments for war.

SUN OIL COMPANY
PHILADELPHIA



FAITH

THE greatest asset of a man, a business or a nation is faith.

The men who built this country and those who made it prosper during its darkest days were men whose faith in its future was unshakable.

Men of courage, they dared to go forward despite all hazards; men of vision, they always looked forward, never backward.

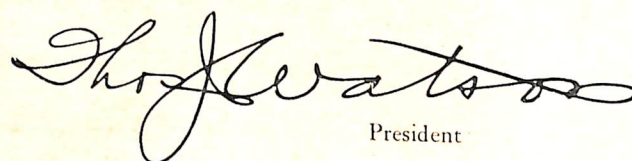
Christianity, the greatest institution humanity has ever known, was founded by twelve men, limited in education, limited in resources, but with an abundance of faith and divine leadership.

In these days of stress let us hold to faith: faith in divine leadership; faith in the power of Christianity; faith in the leadership of our Commander-in-Chief, President Roosevelt; faith in his official staff and all the men in our armed forces; and faith in ourselves.

As Whittier declared: "The steps of faith fall on seeming void, but find the rock beneath."

In the situation which faces the world today the "seeming void" ceases to exist when we realize the solid rock beneath our cause.

The vision essential to clear thinking; the common sense needed for wise decisions; the courage of convictions based on facts not fancies; and the constructive spirit of faith as opposed to the destructive forces of doubt will preserve our Christian ways of life and win the war.



President

INTERNATIONAL BUSINESS MACHINES CORPORATION

TO WINSTON:

"Sail on, O Ship of State!
Sail on, O Union, Strong and Great!
Humanity with all its fears,
With all the hopes of future years,
Is hanging breathless on thy fate!"

—Longfellow



DEDICATION

America is at grips with the most portentous peril of its history. Temporarily in possession of its territorial outposts, and menacing its flanks and vital interests everywhere, are Totalitarian States, which are employing formidable numbers of trained men and machines to effect its conquest. To overcome the ruthless forces seeking our destruction, we are, with our Allies, fighting across and on the seas and in the air, and are speeding to complete mobilization the vast interrelated resources of Man Power and Industry with which we are blessed. To the Commander-in-Chief, in whose leadership we have placed our trust, to those who already have given their lives for country, to the Personnel of our Armed Services striving to attain and expressing in action full battle efficiency, to the Captains and Workers of Industry and to our Farmers strenuously laboring to supply them, to the Engineers and Inventors searching to perfect their equipment, to the Nations united with us in the determination to save Democracy, the Army and Navy Journal, secure in its faith in American patriotism and power, dedicates this Record of Progress toward, and promise of, certain Victory.

The Army and Navy Journal

TO FRANKLIN:

"And not by eastern windows only,
When daylight comes . . . comes
in the light,
In front the sun climbs slow, how
slowly,
But westward, look, the land is
bright."

—Clough



Ask the
BOMBER PILOT...



About

JACOBS



AIRCRAFT

Engines

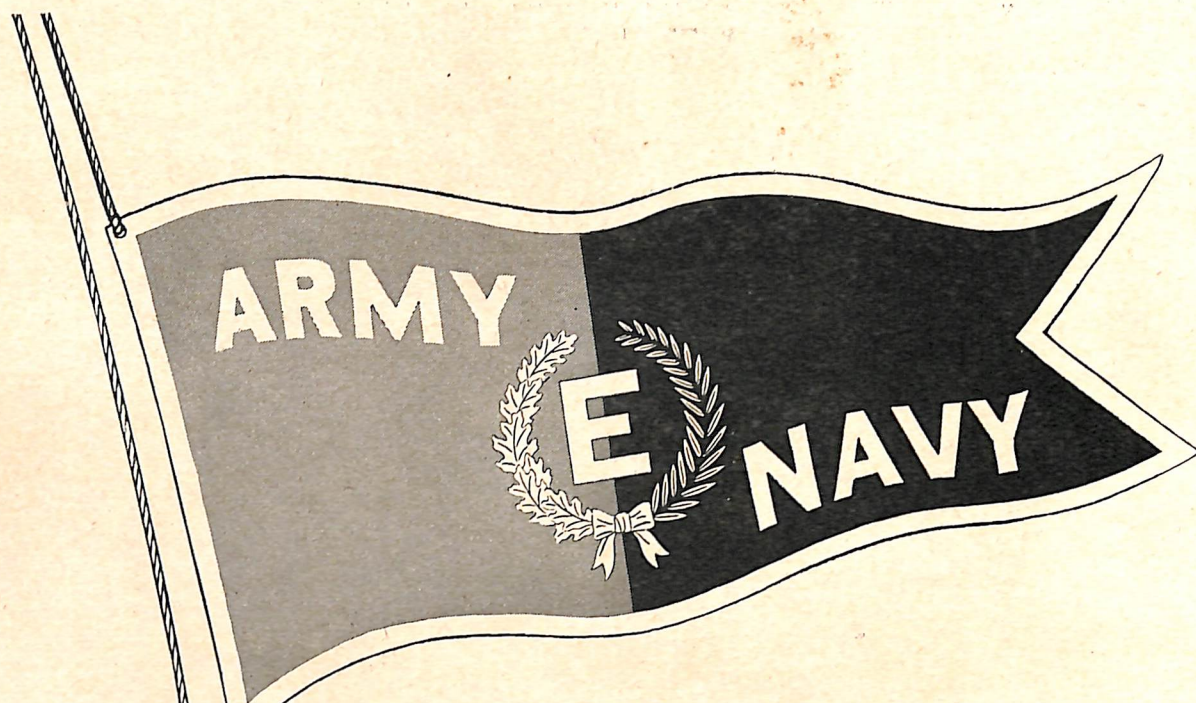
...He probably trained behind them, because the majority
of twin-engine Trainers are now powered by Jacobs.

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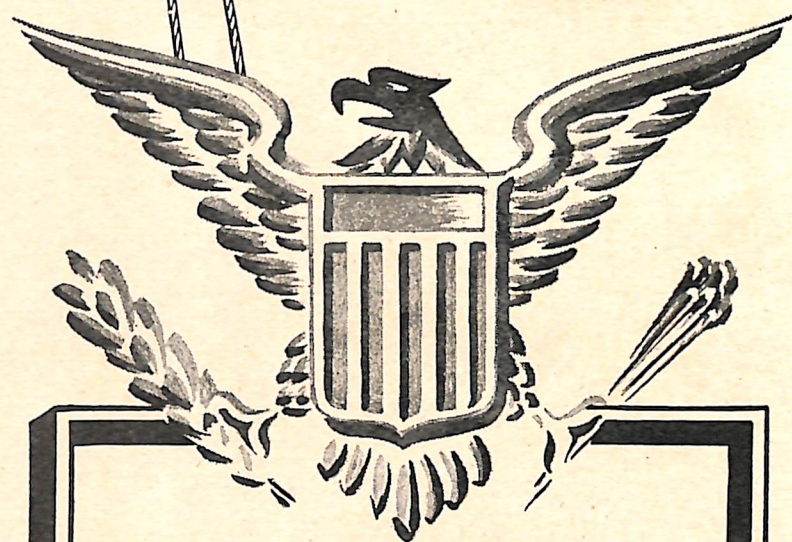


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ADEL keeps pace with the rising tide of aircraft
deliveries thru prompt service from six strategically
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support, hydraulic, anti-icing and allied equipment.





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REVERE TECHNICAL ADVISORY SERVICE

In many plants and industries, Revere Technical Advisory Service men are working shoulder to shoulder with executives and engineers in solving defense problems by selecting a suitable type and form of copper or one of the many copper base alloys.

These are picked men, with broad backgrounds in metal-working methods, plus highly specialized knowledge of copper and copper base alloy characteristics and applications. They are supported in this work by the full cooperation of the Revere Research Laboratories and Revere Mills.

This Technical Advisory Service comprises a thoroughly equipped Research Laboratory, manned by engineers and metallurgists for (1) developing new and better Revere materials to meet active or anticipated needs of industry; (2) supplying specific and detailed knowledge of the properties of engineering and construction materials; and (3) continuously observing developments of science and engineering with a view to their utilization in the improvement of Revere production methods and equipment.

In addition a corps of technical men are available to (1) help industrial executives make use of data developed by the Revere research laboratory staff; (2) perceive the material problems existent in industrial plants contacted; (3) assemble data enabling Revere research laboratory men to study these problems; and (4) make practical tests of the materials recommended in the plants concerned.

This Revere Technical Advisory Service set-up has been very successful in reducing costs, improving products and increasing the output for many industrial concerns.

Its service is available to you with no expense or obligation on your part.

RECENTLY, the Army-Navy "E" for high achievement in the production of war equipment was awarded to 2200 Revere workers in Chicago. A few months previously, the workers in Revere's New Bedford and Rome Divisions received similar awards. Revere Copper and Brass Incorporated is proud of this great honor, and knows that the will and the means are available to maintain that level of production.

In doing so Revere can offer a further service of value, a second dimension in production that reaches beyond the Revere plants and aids other industries. For Revere's wide knowledge of copper and copper-base alloys is available, through the Revere Technical Advisory Service, to Army and Navy technicians as well as to industry generally.

In this twofold way, it is hoped, Uncle Sam can be provided still more quickly with the world's most potent arms for victory.

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Foreword

AMERICA and her Allies, with growing might, are moving to destroy the formidable forces which are seeking to conquer them and to drive Democracy from this Earth. The stately verse which recites the events of the first year of this savage Armageddon, is a lustrous addition to the epic of our country. It is a verse that breathes the spirit of the Pioneer, the Continental, the Wearer of the Blue and the Wearer of the Grey, the Conqueror of Spain and the Crusader for Our Way of Life a quarter of a century ago. Animated by that spirit, a unified People, willingly greeting sacrifice and giving lavishly of its wealth, is offering millions of eager and indomitable Youth for battle, and the greatest Industry the world ever has seen, has ceased the manufactures of peace, and is applying its skill and plants and yards to the manufactures of war. It is an onerous task, this transformation of a Land that hated armament into a machine of destruction; but with quickening speed it is being accomplished. And while we have been developing and massing our strength, those of our Sons who were ready, were meeting our enemies with traditional gallantry and courage. There was the instant resurgence by our superbly disciplined officers and men from the perfidious Japanese attack at Pearl Harbor. There were the efficiency and fortitude of the little band MacArthur commanded in the Philippines, supported by the heavily outnumbered Asiatic Fleet, which by their skillful and courageous resistance bought time for our preparations. There were the dashing raids from Bataan and in Macassar Straits offset by the brave reverse of the Java Sea. There were the magnificent victories won by our squadrons in the Coral Sea, at Midway and in the waters of the Solomon Islands. There was the stoical fighting of our Marines and their reenforcements of troops on Guadalcanal. There were the operations in New Guinea, in the occupied Aleutian Islands, and the campaign inaugurated in North Africa. There were the dangerous feats of our silent submarine service. On all the Fronts and on the Seven Seas, the Valor of America, ashore, afloat, and in the air, stands out both as a fact established, and a promise of what is to come.

It is not simple to change the thinking of a People nor their mode of life. Man is inclined to hold to opinion and cling to custom. As the cry of ravished Nations sounded louder in our ears, and the thickening clouds of war began to lower over us, we were forced to accept violent dislocations in our economy, to experiment, regiment, organize and reorganize, and to put up with dictatorial impositions upon our freedom and conduct, which have only begun. With an unanimity that demonstrates that Democratic Government does work under emergency circumstances, President Roosevelt and the Congress agreed upon laws and policies designed to fit us to meet the powerful foes that were menacing us. During the years since Hitler

smote Poland with his ruthless fist, appropriations and contract authorizations have been provided, which total the incredible sum of 225 billions of dollars; and more will be forthcoming. At the time the Japanese struck, there were under training in the Army, 1,588,000 officers and men, there was a Fleet of power and efficiency, there were growing, but still wholly inadequate, Air Forces, and there was an Industry which, thanks largely to Allied Orders and Lend-Lease, had started to deliver to the Arsenal of Democracy increasing quantities of guns, tanks, planes, ships, and a myriad of other items of munitions for the Nations struggling against totalitarianism and slavery. Since the Declarations of the State of War with Japan, Germany and Italy, the Army has been enlarged to 4,250,000 officers and men, with 7,500,000 as our planned strength by the end of 1943; new warships have been rapidly launched and commissioned to replace those lost and to add to our sea strength, and Industry, spending billions of dollars from its own pocket or of Treasury loaned funds, has enormously expanded its productive facilities. Labor, and management, more and more conscious of their responsibility as the weeks passed, are joining in patriotic alliance. Organizational failures have provoked confusion, blunders have been made, waste has occurred; but it cannot be forgotten that within the year battles have been won and offensives have been inaugurated. The year will be noteworthy for the progress made toward the peak of effort, and when that is achieved the United Nations, bound together by unity strengthened by our able statecraft, will have forces at the point of battle which will assure the complete defeat of our enemies, the Philippines regained and the conquered freed.

In this "United States At War," the ARMY AND NAVY JOURNAL, which has reported faithfully every war since that which split the States in Lincoln's time, is presenting articles on their activities prepared agreeably at its request by the responsible officials of the Government, the Leaders of the Army and the Navy, and outstanding Chiefs of Industry and Labor. Enabling it to perform this ambitious service are the Bureau of Public Relations of the War Department, the Office of Public Relations of the Navy Department, and the Office of War Information, to which our own thanks and the thanks of our readers are due. The combined effort carries the certainty expressed by our President and Commander-in-Chief:

"With confidence in our Armed Forces, with the unbounding determination of our People, we will gain inevitable Triumph, So help us God."

JOHN CALLAN O'LAUGHLIN,
Publisher, ARMY AND NAVY JOURNAL



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FROM AN ORIGINAL DRAWING BY ORISON MACPHERSON

THROUGHOUT THE NIGHT DETERMINED MEN MAKE BATTLE STEELS

Like commandos on attack, stalwart steel men come in the dead of night to work till dawn, grim in their determination to produce speedily the fighting steels to arm your sons and brothers on the battle fronts. On the night-turn, thousands strong, come men like the metallurgist who added the final touch in perfecting a new armor steel; like the melter who now makes that steel two-hundred tons at a time.

There come men who roll wide steel plates for ships and miles of tubes for bombs and those who forge and machine glistening shells from steel made by their fellow workers. There are the coke workers, the blast furnace men, the melters, blowers, heaters, rollers, finishers — workmen of many trades and skills — all doing their part to furnish steel for ships, tanks, guns, planes and other fighting equipment.

These men of steel, by their will-to-do to help win this war, achieve new high records in production night and day, month after month. Every ton of steel they make is shipped to war.



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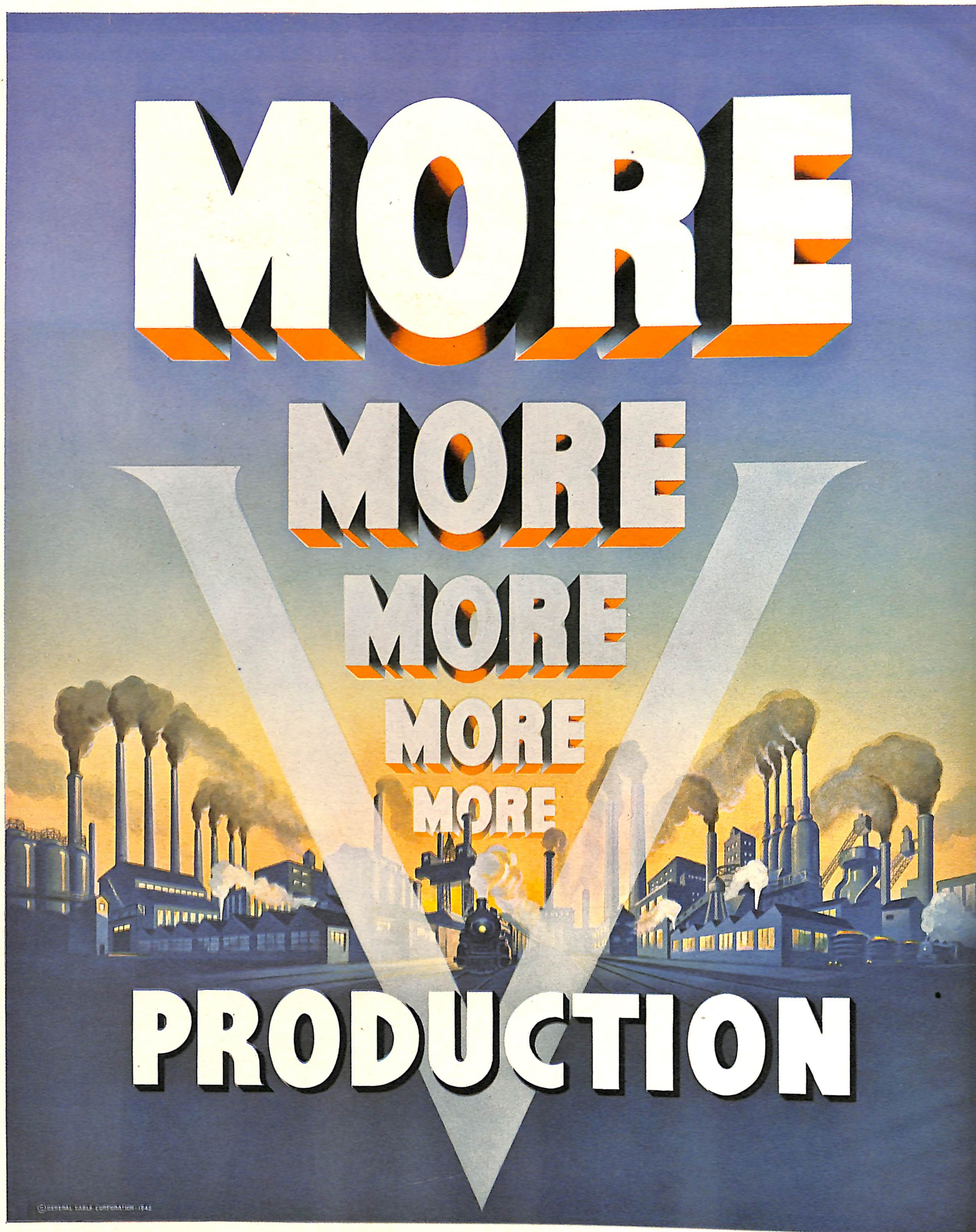
PITTSBURGH, PENNSYLVANIA

PARTNER TO INDUSTRY IN WAR PRODUCTION





*"And the Star Spangled Banner,
In triumph shall wave!"*



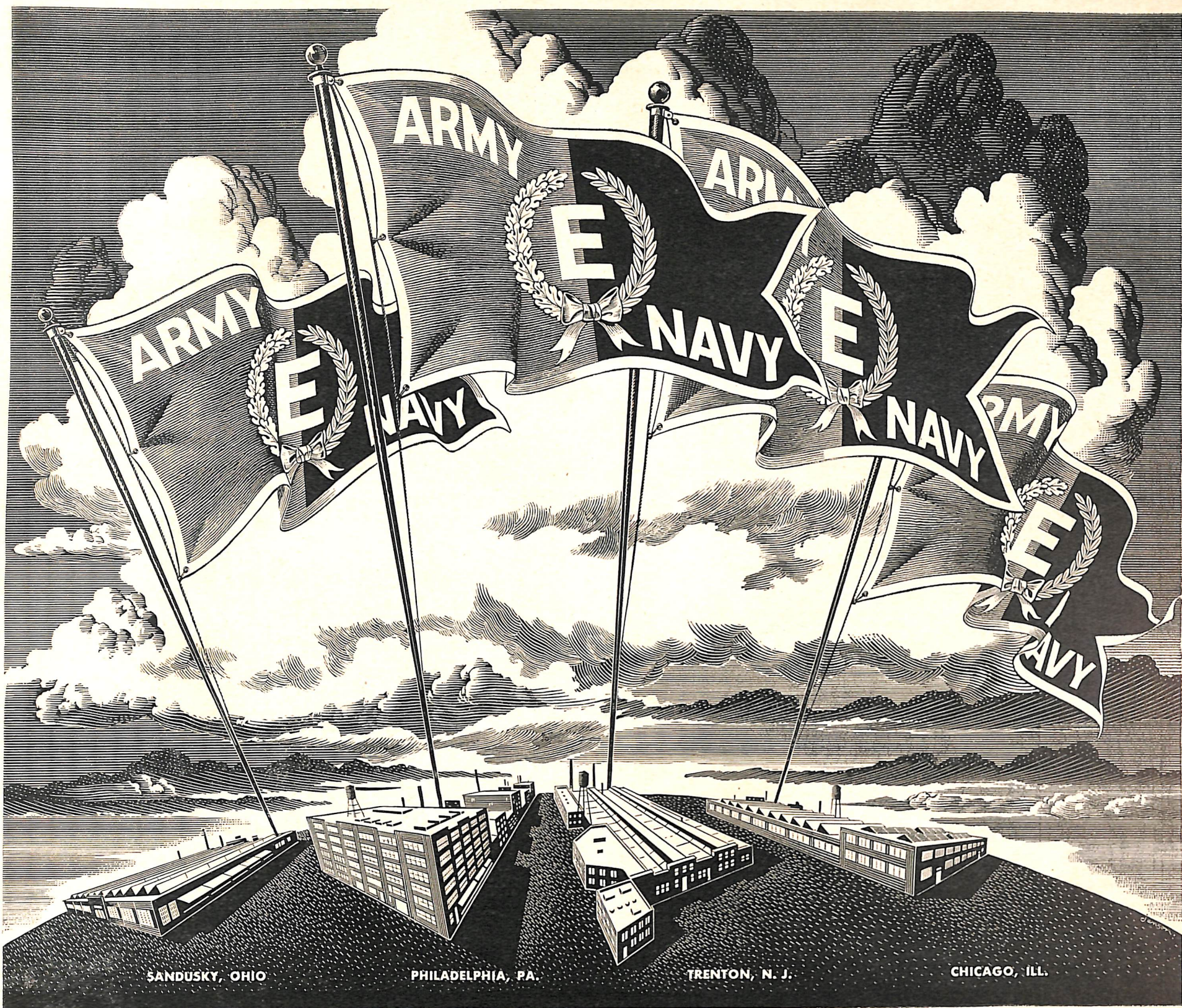
To every essential industry striving to aid the MORE
PRODUCTION war effort, General Cable pledges
all possible cooperation . . . in all ways.

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Battle Flags ***for Philco Soldiers of Production***

On four separate occasions... in Philadelphia, Pa., Trenton, N. J., Sandusky, Ohio and, now, in Chicago... distinguished officers of the Army and Navy have presented the Army-Navy "E" Flag to the men and women of Philco for their achievements in the production of the weapons of Victory.

Of course, Philco is proud of its soldiers of production who have turned their knowledge and their skill so effectively to the service of the nation. In the manufacture of intricate communications equipment, powerful radios for tanks, airplanes and ships, artillery fuzes, shells and storage

batteries, Philco's war production activities serve every branch of our fighting forces, on land, at sea and in the air.

The Army-Navy "E" flags that now fly above the Philco plants are symbols of the vital partnership between our soldiers of the front and our soldiers of production. More than that, they are *battle flags* for America at home, symbols of the devotion and sacrifice beyond the line of duty which are the price of Victory. To the men and women of Philco, they are a challenge and a responsibility... an inspiration to even greater accomplishment until that Victory is won.

PHILCO CORPORATION



Photo by Pack Bros., N. Y.

THE HONORABLE FRANKLIN DELANO ROOSEVELT

President of the United States

Commander in Chief of the Army and Navy of the United States

★ ★ ★ ★ ★ ★ ★ ★

THE WHITE HOUSE
WASHINGTON

November 25, 1942

Dear Colonel O'Laughlin:

The dominant note of our common war effort is unity, unity of our people, and unity of the United Nations. That is the hard fact which is the spearhead of victory. I am happy in the knowledge that it exists with us. Upon the battlefields of the seas and the continents across them, our crews and troops are operating with the efficiency of well trained and disciplined teams. Coral Sea, Midway, the Solomons, New Guinea and North Africa are shining instances of their power. Also, thanks to the patriotism of our people, our land has become the Arsenal of Democracy from which, to quote Milton's pregnant lines, the world hears:

"Sonorous metal blowing martial sounds:
"At which the universal host up sent
"A shout that tore Hell's concave, and beyond
"Frightened the reign of Chaos and old Night."

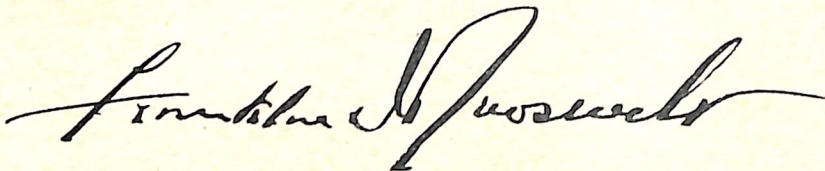
I take pride in the grim determination of our people to preserve our democratic heritage whatever the sacrifices required of them; in the deeds of our fighting personnel, which are adding unfading glory to our traditions; in the magnificent resistance and resurgence of Britain, Russia and China, and in the unconquerable spirit flaming in the countries desecrated by the Frankensteins created by blood-fouled criminals.

I take pride, too, in our unity in deliberation, in decision, in action. Our initial acceptance of the defensive, our assumption of the initiative when the opportunity struck, were no hit or miss calculations. They were the outcome of thoughtful estimate made not by nightmarish amateurs, but by military men whose lives have been consecrated to the study of war. An outstanding example of their labors is the brilliant campaign underway in North Africa.

The truth about the war effort of the United Nations will make our people appreciate how great has been, and promises to be, our progress toward victory and freedom for mankind.

Very sincerely yours,

Colonel John Callan O'Laughlin,
Publisher,
Army and Navy Journal,
Washington, D. C.



The March of Freedom for the Common Man

by

The Hon. Henry A. Wallace

Vice President of the United States

THIS is a fight between a slave world and a free world. Just as the United States in 1862 could not remain half slave and half free, so in 1942 the world must make its decision for a complete victory one way or the other.

As we begin the final stages of this fight to the death between the free world and the slave world, it is worth while to refresh our minds about the march of freedom for the common man. The idea of freedom—the freedom that we in the United States know and love so well—is derived from the Bible with its extraordinary emphasis on the dignity of the individual. Democracy is the only true political expression of Christianity.

The prophets of the Old Testament were the first to preach social justice. But that which was sensed by the prophets many centuries before Christ was not given complete and powerful political expression until our nation was formed as a Federal Union a century and a half ago.

Even then, the march of the common people had just begun. Most of them did not yet know how to read and write. There were no public schools to which all children could go. Men and women cannot be really free until they have plenty to eat, and time and ability to read and think and talks things over.

Down the years, the people of the United States have moved steadily forward in the practice of democracy. Through universal education, they now can read and write and form opinions of their own. They have learned, and are still learning, the art of production—that is, how to make a living. They have learned, and are still learning, the art of self-government.

If we were to measure freedom by standards of nutrition, education and self-government, we might rank the United States and certain nations of Western Europe very high. But this would not be fair to other nations where education has become widespread only in the last 20 years. In many nations, a generation ago, nine out of ten of the people could not read or write. Russia, for example,

was changed from an illiterate to a literate nation within one generation and, in the process, Russia's appreciation of freedom was enormously enhanced. In China, the increase during the past 30 years in the ability of the people to read and write has been matched by their increased interest in real liberty.

Everywhere, reading and writing are accompanied by industrial progress, and industrial progress sooner or later inevitably brings a strong labor movement. From a long-time and fundamental point of view, there are no backward peoples which are lacking in mechanical sense. Russians, Chinese, and

lectively, and when the children of all the people have an opportunity to attend schools which teach them the truths of the real world in which they live—when these opportunities are open to everyone, then the world moves straight ahead.

But in countries where the ability to read and write has been recently acquired or where the people have had no long experience in governing themselves on the basis of their own thinking, it is easy for demagogues to arise and prostitute the mind of the common man to their own base ends. Such a demagogue may get financial help from some per-

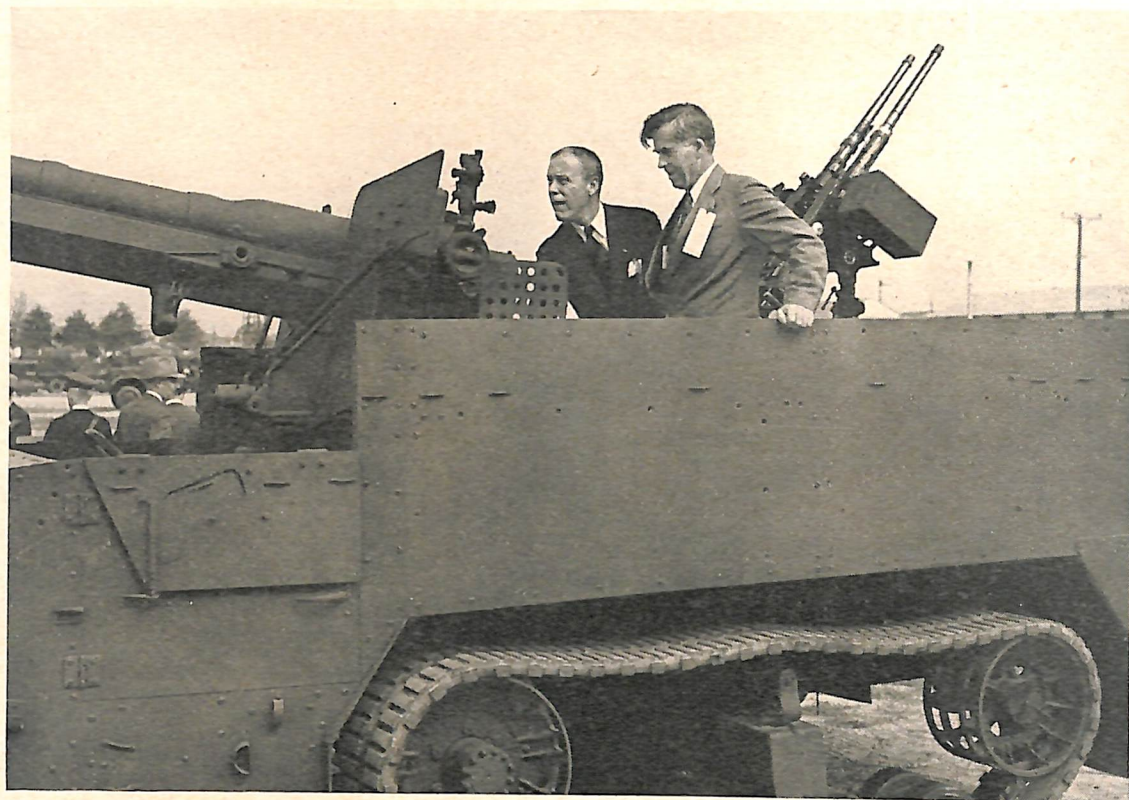
son of wealth who is unaware of what the end result will be. With this backing, the demagogue may dominate the minds of the people, and, from whatever degree of freedom they have, lead them backward into slavery.

Herr Thyssen, the wealthy German steel man, little realized what he was doing when he gave Hitler enough money to enable him to play on the minds of the German people. The demagogue is the curse of the modern world, and of all the demagogues, the worst are those financed by well-meaning wealthy men who sincerely believe that their wealth is likely to be safer if they can hire men with political "it" to change the sign posts and lure the people back into slavery of the most degraded kind.

Unfortunately for the wealthy men who finance movements of this sort, as well as for the people themselves, the successful demagogue is a powerful genie who, when once let out of his bottle, refuses to obey anyone's command. As long as his spell holds, he defies God Himself, and Satan is turned loose upon the world.

Through the leaders of the Nazi revolution, Satan now is trying to lead the common man of the whole world back into slavery and darkness. For the stark truth is that the violence preached by the Nazis is the devil's own religion of darkness. So also is the doctrine that one race or one class is by heredity

(Continued on page 161)



Vice President Wallace, right, with Under Secretary of War Patterson, inspects a half track scout car with its 75mm. gun and 50 calibre machine guns. Signal Corps Photo

Indians both of India and the Americas all learn to read and write and operate machines just as well as your children and my children. Everywhere the common people are on the march. Thousands of them are learning to read and write, learning to think together, learning to use tools. These people are learning to think and work together in labor movements, some of which may be extreme or impractical at first, but which eventually will settle down to serve effectively the interests of the common man.

When the freedom-loving people march—when the farmers have an opportunity to buy land at reasonable prices and to sell the produce of their land through their own organizations, when workers have the opportunity to form unions and bargain through them col-

The General of the Armies Speaks—

by
General John J. Pershing

HUMANITY again is engaged in a titanic struggle to determine whether men shall be free or enslaved. The issue cannot be in doubt. Victory will be won by free men, and the world will be free.

The World War of 1914-1918 taught us that we could not regard with indifference the clouds of war even in regions of remote interest to us. With the utmost desire to remain aloof from that contest we were drawn into it in defense of a great principle. Such is the case now. During the last decade we watched with concern the grave events which transpired in Europe, realizing that we could not stand aside, and this realization became sharper as Nazi Germany and its Allies overran Europe and threatened the destruction of the British Empire. When Japan treacherously attacked our Fleet at the very moment her Ambassador was discussing peace with our Secretary of State, it was the inevitable consequence of the chain of events which began with our allied failure during World War I to move on Berlin, and in that enemy Capital dictate peace to the German people. Had we marched through their conquered land, there would have been brought home to them the horrors of war and the humiliation of defeat, and they would have been restrained from following the paranoically ambitious paper hanger of Austria.

Two years after the Armistice of 1918, the Congress enacted into law a policy which gave us a framework for the forces we now have in the field. That law provided for a Regular Establishment, one duty of which was defense of our overseas possessions of Panama, Hawaii and the Philippines. We have learned by bitter experience how pitifully inadequate in strength was the handful of brave and skilfully led men assigned to hold the Far Eastern Archipelago. The law also contemplated that the Regular officers and troops should instruct and train our citizen soldiers, and there was a further provision for the organization of the National Guard and the Reserves into regiments and divisions, utilizing as a basis the splendid units that had so gallantly saved civilization in 1918. The program was meagre, yet for so-called economy reasons it was not fulfilled as planned, and we were in a deplorable condi-

tion of defense when Hitler began the war by marching into Poland. Although the signposts pointed to our inevitable participation in the conflict, although our military leaders emphasized this certainty and pleaded for the increased armaments which they foresaw would be needed, we moved slowly. Yet when Japan struck, we were in a far more effective



posture than was the case in 1917. Then, aside from our small Regular Establishment and National Guard, we had no trained or disciplined troops, and it was necessary to throw into battle, many who never had fired a rifle. More fortunate now as a result of that law and the Selective Service Act and the intensive instruction given to the men called to the Colors, we have troops who have learned how to fight, and they have officers whose preliminary training promises to make them efficient as leaders. I am particularly interested in the General Staffs that have been created. As far back as the Revolution, Washington said: "To remark to a military man how all

important the General Staff of an Army is to its well-being, and how essential consequently to the Commander-in-Chief, seems unnecessary." During World War I, but for the training in General Staff duties given to our Officers at Service Schools, the successful handling of great masses of partially trained troops in operations, while at the same time

providing for their enormous needs in food and materials, would not have been possible. Since the Armistice of 1918, our Service Schools have continued in operation, and there is the prospect of efficient conduct of operations by trained officers. As for the troops, I can say of them what I said of the men I commanded. Being Americans they have initiative and energy, which are as essential in the test of war as they are in the pursuit of peace, and they vie with their Allied comrades in tenacity and valor. A pacific spirit and a sense of justice have not weakened their virility and courage. I have no doubt they will acquit themselves as nobly as their Fathers did.

War is a vast consumer of machines and munitions and food. When it suddenly came upon us in 1917, tremendous burdens fell upon the country's resources, with no organization by which they could be expeditiously utilized. Manufactured materials of all kinds were lacking, and facilities for their production were undeveloped. Food products were needed, and the system of handling them was inadequate. Rail transportation was unorganized for mobilizing men and supplies, while ship tonnage available was well nigh negligible. Happily when we entered the war a year ago, we were in a better

situation, but by no means at the point where expected military needs could be supplied. However, the resources of capital and industry are being mobilized, and relying as I do upon the patriotism of management and labor, I believe the peak of production will be achieved, and that our troops will have the food and munitions they require for the important operations in which they will engage.

Without food for our Armies and our Allies, the war cannot be won, but as in 1917 we can rely upon our farmers to produce sufficient for our needs and upon our civilian population to make the sacrifices to assure

(Continued on page 166)

The Foreign Policy of the United States

by

The Honorable Cordell Hull

Secretary of State

THE primary objectives of our foreign policy have been, and are, the security of our country and the welfare of our people. In pursuance of these objectives, the Government of the United States has sought the advancement in international relations of order and morality, which are indispensable to the national security and well-being of our nation and of every nation and people.

In 1933, at the Montevideo Conference of the republics of the Western Hemisphere, the American delegation advocated and signed the Convention on the Rights and Duties of States, in which specific precepts of international morality were made a part of the international law of the American Republics. In 1934—when the last of the United States Marines were withdrawn from Haiti, and when we abrogated the Platt Amendment, which had given the United States the right to intervene in Cuba to preserve order—the world realized that we meant what we had said at Montevideo. The solidarity of the Americas is a visible sign of the Good Neighbor policy.

In the summer of 1937 I formulated briefly the fundamental principles of our international creed. Among other things, I said:

“... We advocate adjustment of problems in international relations by processes of peaceful negotiation and agreement. We advocate faithful observance of international agreements. ... We advocate steps toward promotion of economic security and stability the world over...”

To those fundamental principles we have steadfastly adhered. By means of the trade agreements made under congressional authorization of 1934, this Government sought to bring about an increase of international commerce for the mutual benefit of this and other countries. The principles of peaceful negotiation and observance of treaties are those which we constantly advocated in the Far East and in Europe.

Through the 1930's it became more and more clear that the policies of our present enemies were aggression and war. Manchuria was taken by Japan in 1931. The rearming of Germany commenced in 1933. The Washington Treaty for the limitation of naval armament was ended by notice of Japan in 1934. Italy invaded Ethiopia in 1935. The Locarno Treaty was destroyed by Hitler in 1936. Japan invaded China in 1937. The outbreak of war in Europe, soon to spread over almost all that continent, came in 1939. A year ago we were brought into the maelstrom by the attack at Pearl Harbor and the German and Italian declarations of war

against us.

That succession of events went on despite all our efforts to maintain peace and, after war came, to limit its area. Until the hour of Pearl Harbor we constantly sought justice for China and a fair and honorable settlement of the conflict which Japan had started. In Europe, hoping against hope to avert catastrophe, we took every possible diplomatic step, including direct appeals by President Roosevelt to Hitler and to Mussolini. But nothing could change the plans of the three



aggressors.

In such a developing situation, it was the plain duty of the United States to prepare defenses. Modern science had narrowed the wide oceans of the past. Attack on either or both of our coasts was becoming more than a mere possibility. Military, naval, and air programs of the administration were submitted to Congress and were approved, although there were some who still could not or would not see the handwriting on the wall. After the outbreak of the war in Europe, we averted conflict from our shores by furnishing supplies to those nations resisting aggression. And we secured outposts for protection of our country and of the highways of the North and South Atlantic, which Hitler aimed to control as part of his plan for world conquest.

It is not for me to speak in detail of the military results of our defense program. Our forces are on every continent; we are battling

in the Atlantic, in more than one region of the Pacific, in the Mediterranean, and in Africa; we have kept the enemy from the homeland.

Other consequences of what we have done are of momentous importance to the future. We have established friendships which are not merely alliances for the war but comradeship for the coming peace. Russia, sorely pressed by the Nazi armies, stands in the forefront of the peoples who have suffered and who will win through. China, after five years, maintains her noble resistance and looks with confidence to the future. The British, with their marvelous tenacity and their inability to know defeat, through blood and tears have kept their island stronghold. The occupied countries of Europe, aiding in the struggle as best they may, look to us and to our allies for restoration after the holocaust. Our neighbor Canada is knit to us by closest ties. With the republics of this hemisphere we have cooperation of intimate amity. We are one of the United Nations who has adopted the universally applicable provisions of the Atlantic Charter and are thus working together for a better world.

With those friendships and with our own strength and unity of purpose, we cannot and do not doubt our coming victory.

The Day of Infamy

“YESTERDAY, December 7, 1941—a date which will live in infamy—the United States of America was suddenly and deliberately attacked by naval and air forces of the Empire of Japan.

“The United States was at peace with that nation and, at the solicitation of Japan, was still in conversation with its government and its emperor looking toward the maintenance of peace in the Pacific.

“Indeed, one hour after Japanese air squadrons had commenced bombing in the American Island of Oahu, the Japanese Ambassador to the United States and his colleague delivered to our Secretary of State a formal reply to a recent American message. While this reply stated that it seemed useless to continue the existing diplomatic negotiations, it contained no threat or hint of war or armed attack.

“It will be recorded that the distance of Hawaii from Japan makes it obvious that the attack was deliberately planned many days or even weeks ago.

“During the intervening time the Japanese government has deliberately sought to deceive the United States.”—PRESIDENT ROOSEVELT.

British Commonwealth of Nations at War

by

His Excellency the Rt. Hon. the Viscount Halifax, K. G.

British Ambassador

SINCE the passing of the Statute of Westminster in 1931, the Dominions of the British Commonwealth have enjoyed, in constitutional theory as well as in actual fact, complete independence. They are an alliance of free peoples, linked together, it is true, by the bond of the Crown, but under no external control whatever. In 1939 they could, had they wished, have stayed out of the war—at least for as long as Hitler allowed them to do so. Instead, with the single exception of Eire, who chose to remain and still remains neutral, they all declared war on Germany. Nor were these declarations mere gestures. The Dominions have fully matched Great Britain in service and sacrifice.

The war effort of Canada, as a near neighbor, is probably the most familiar to the people of the United States. Before the war, she was only partially industrialized and had a tiny army, navy and air force. Today the position has changed out of all recognition. Great munition plants are turning out ships, guns and tanks for the United Nations. Under the Empire training scheme thousands of young airmen from Great Britain and the Dominions are winning the freedom of the air, under

conditions of training as nearly ideal as can be conceived. Warships of the Royal Canadian Navy have a prominent part in the Atlantic patrol. A powerful striking force



Eritrea and Somaliland was largely the work of South African troops, while soldiers and airmen from the Union are now fighting in Libya and Madagascar.

There is another partner in this alliance of free peoples, Britain herself. In the admiration we rightly feel for the magnificent achievements of the men from the Dominions, full justice has not always been done to the men from the mother islands. Yet it is true that, even on a basis of population, no part of the Commonwealth has made greater efforts or sustained more grievous losses. In Britain today every fit man between the ages of 18½ and 51, who is not irreplaceable in essential work, is in one branch or another of the forces, and no less than 5½ million women have been mobilized for work in industry. An immense output of munitions has been reached. The home production of food has been almost doubled. Over \$15,000,000,000 has been raised in war savings. Food and clothing are strictly rationed. These great burdens have been borne, not only under the threat of invasion, but under aerial attacks in which over forty-four thousand civilians have been killed, over fifty thousand injured, and one dwelling house in every five destroyed. Meanwhile Britain's men are fighting in the Middle East, in the bombers which are visiting the industrial centres of Germany or the back areas of Libya, in the fighters which sweep over northern France, in the merchant ships which keep open the communications of the Commonwealth, and in the warships which guard our convoys and attack those of the enemy.

Such is the record of the Commonwealth, without taking account of the great military, naval and industrial contributions of the Indian Empire or of the Colonies.

These mighty efforts of a society of free peoples must constantly bewilder the political pundits of the Axis. To them the conception of a Commonwealth united by bonds which appear to be lighter than air, but have proved to be stronger than steel, must appear not only incomprehensible but even improper. They feel that by every rule of logic, and of their own experience, Britain's embarrassment should have been the Dominions' opportunity; and that, at the impact of war, a Commonwealth, so tenuously united, should have promptly disintegrated. The Germans made that mistake in 1914. They made it again in 1939. They will go on making it since, having bartered their own freedom so lightly in exchange for an illusion of world power, they will never understand the devotion to free institutions, which are a reality and no illusion, in the life-blood of every member of the British Commonwealth.



U. S. Army Signal Corps Photo
Field Marshal Sir John Dill, senior British member of the Combined Chiefs of Staff; Maj. Gen. Leven C. Allen, AUS, commandant of The Infantry School, and General George C. Marshall, chief of staff of the U. S. Army, on a tour of inspection at Ft. Benning, Georgia.

of Canadian soldiers and airmen is in Britain, to guard the island against invasion and, when the moment arrives, to operate on the Continent. These troops gave the Germans a taste of their quality in the recent raid on Dieppe, where, in spite of heavy losses, they fought with the same gallantry as their fathers showed at Vimy Ridge; and when the hour strikes, they will undoubtedly be a spearhead of the army of liberation.

Australia and New Zealand, although the more remote of the Dominions, are nearer danger point. They are threatened with invasion by the Japanese and already some of the cities of Australia have been bombed from the air. Australian and New Zealand troops, who fought in Libya and Malaya with the traditional stubborn courage of the Anzacs of the last war, are now, side by side with their American Allies, fighting with the same unshakeable courage in New Guinea. Units of their navies are operating with American units in the South Pacific; their airmen are harrying the Japanese, wherever they find them; and, in spite of the threat to their own shores, Australian and New Zealand troops had a large share in the recent defeat of Field Marshal Rommel on Egypt's western frontier.

The Union of South Africa, too, with its smaller white population, led by that grand veteran of former wars, Field Marshal Smuts, has done and is doing her share. The conquest of Mussolini's African Empire in Abyssinia,

Belgium's Heroic Stand for the Allies

by

His Excellency, Count Robert van der Straten-Ponthoz

Ambassador of Belgium

IN spite of the most solemn pledges, Germany invaded Belgium on August 4, 1914.

Twenty-six years later, the Reich committed the same act of violation; in 1937, it had, however, declared that the inviolability and integrity of Belgium were both of common interest to the European powers and it had likewise asserted its determination to respect, under any circumstances, Belgian independence and territory.

One might have thought that the sufferings and privations endured by Belgium from 1914-18, the atrocities committed on the old people, the women and the children, would have diminished the power of resistance of a people still vividly impressed by the memory of so much horror. It was not so.

When the German hordes crossed the frontier, May 10, 1940, they found facing them an army which, as one knows today, fought with the vigor of despair. For eighteen days, the King led his army against an enemy superior in number and arms, and he surrendered only when he saw that all resistance had become useless. Since that time, the King considers himself, and is treated as a prisoner of war, the same as each of his soldiers; He resists the pressure Hitler exercises over him by refusing to cooperate with the occupying power. His people stand behind him. The example of tenacity and contempt for the invader, which the King shows them, raises the courage of all Belgians, whether they belong to the middle classes or the working classes. Every day, acts of sabotage are committed, which unfortunate hostages must pay for with their lives.

Belgium fights for the cause of justice and of right, not only on her own soil, but also outside. The Government, refuged in London, works in perfect harmony with the Governments of the United Nations with whom it signed, on January 2, 1942, a declaration by which it pledged itself to employ in the struggle its full resources, military and economic, to cooperate with the other signatories, and not to make a peace with the enemy, or a separate armistice.

Since the beginning of hostilities, Belgium has placed 400,000 tons at the disposal of Great Britain, which constituted her merchant fleet; already 50% have become victims of Axis submarines.

The vast resources of the Belgian Congo, so vital to the Allied war effort since the Japanese occupation of the Dutch East Indies and of the British possessions in Malay, are sent to the United States and to Great Britain. In England, a new

Army has been formed, composed of soldiers gone to that country after Dunkirk, of all men of military age residing in free countries, of young men who, in daily peril of



their lives, escape from Belgium. Many are the Belgian aviators who participate in the R.A.F. raids. And in Africa, the Colonial Army, several thousand men strong, awaits only the chance to repeat its military feats of the Ethiopian campaign, where cooperating



Belgian soldiers, completely re-equipped and re-armed training somewhere in Wales, to take their place with the Allied forces against the common enemy. Bren gun crews in action in the undergrowth at the edge of a wood.

with the troops of the British Empire, it took active part in the destruction of the Italian domination of East Africa.

After thirty months of occupation, Belgium's will to pursue the fight until victory, has never been stronger. With the aid of their powerful Allies, the Belgian people are certain that Belgium will regain her independence and will take her place again in the society of free and peaceful nations.

King Leopold III

by

Hon. Joseph E. Davies

U. S. Ambassador to Belgium, 1938-1940

IMEDIATELY following the invasion of Poland, Belgium was subjected to very great pressure from both sides to swerve it from this strict neutrality. On the one side Germany tried to coerce Belgium into resisting the British blockade. It was the German position that the blockade was an attack on Belgium's sovereignty and it was intimated from Berlin that unless Belgium would protect her sovereignty in this situation Germany would have to come in and do it for her. From the other side, as the war grew more intense, and particularly before the threatened invasion in November, there was great pressure from the friends of France and England that Belgium should permit closer liaison between their military High Commands in order to be better assured against possible German attack. The attitude of the King in the face of both of these situations indicated to me the quality of the principle and the strength of the man. Against that pressure from either side he stood like a rock. It took great courage and steadfastness. In this position he was charged with being pro-Ally and also with being pro-German. As a matter of truth and fact, he was neither—he was wholly, utterly and completely pro-Belgian. For the protection of his people he conceived that he had pledged his personal honor that his country would maintain neutrality. No pressure could weaken his adherence to principle. From the many talks of these days which I had with him, I always came away impressed with the moral intensity of his character.

(The above is an extract from a statement made by Ambassador Davies, November 1, 1940.)

Cuba's Position in the Present War

by

His Excellency Dr. Aurelio F. Concheso

Ambassador of Cuba

CUBA was one of the first nations in the Western Hemisphere to declare war against the Axis. As soon as the news of Japan's dastardly aggression reached the Cuban Government, on the afternoon of December 7, 1941, President Batista sent Congress a Message asking the declaration of a state of war between Japan and Cuba. A few hours after President Batista had signed the declaration of war against Japan, moments after its approval by the Congress, news of the declarations of hostilities by Germany and her vassal, Italy, against the United States made it his duty to send the Congress another request for declaration of war. In view of the full demonstration of the popular will that Cuba take her place in the ranks forming against the whole totalitarian conspiracy against human freedom, the Message was quickly written and sent, and as quickly acted upon by unanimous vote of both Houses. Before midnight of December 11 the new declaration of war had been signed.

In Cuba there is no division of sentiment about the war against the Axis, nor has there been for a long time. The people of Cuba have reacted strongly and unanimously on learning of the aggression and declarations of war against the United States, whose leadership they recognize in the defense of America and of the democratic way of life. As President Fulgencio Batista said on announcing Cuba's declaration of war against Japan to the people of Cuba gathered in front of the Presidential Palace—Cuba's White House, the people of Cuba have felt the Japanese aggression at Pearl Harbor as one against themselves.

Cuba, the natural sugar bowl of the United States, is an important outpost in the defense of the strategic Caribbean area. Only 90 miles from Key West, Florida, at its nearest point, the Island of Cuba stretches across 800 miles of vitally important Caribbean frontier of the United States. The vital Panama Canal is only 720 miles from Cuba's southernmost point. The nearest entrance through the Antilles to the Panama Canal—the key of the whole continental defense of the United States—is the Windward Passage, which lies between the eastern tip of Cuba and Haiti. The American naval base at Guantánamo, southeastern extremity of Cuba, guards the strategic strait. Guantánamo was rented by treaty to the United States in 1903.

The strategic importance of Cuba has been recognized, in the course of history, by Spain, England, Germany and the United States. Spain made use of the Island as a base of operations for the expeditions which conquered Mexico, Florida and other regions of the New World. Hernán Cortes, the conqueror of the Aztec Empire, started out from

Cuba, as did Juan Ponce de Leon, the discoverer of Florida.

The interest of the United States in Cuba dates from the time of Jefferson, who on October 20, 1805 informed the British Minister in Washington—according to the American historian Henry Adams in his "History of the United States during the Administration of Thomas Jefferson"—that if the United States should wage war with Spain, by reason of the dispute over Western Florida, they would need Cuba since the Island was vital to the defense of Louisiana.



Throughout the past century, various North American governments were well aware of the privileged strategic position of Cuba in the Gulf of Mexico. More recently, at the turn of the century, Rear Admiral Mahan confirmed this view in his well-known book, "The Influence of Sea Power on History": "One thing is sure," he stated, "in the Caribbean is the strategic key to the two great oceans, the Atlantic and the Pacific; our chief maritime frontiers."

In the present two-ocean war in which the United States is engaged against the Axis powers, and with the German submarines operating in the Gulf of Mexico and the whole Caribbean Sea, Cuba's geographical position is unique. An enemy force, once past Cuba, would have relatively little difficulty in making its way to the strategic Panama Canal. We don't need to go into detail about the possible consequence of a Nazi foothold or beachhead in Cuba.

The close cooperation which has always existed between our two Governments in every way has been strengthened by an Agreement

of Military Cooperation and in an economic way by measures coordinating our exports and imports. As a manifestation of economic cooperation was the sale of practically our entire 1942 sugar output of 4,000,000 long tons to the United States Defense Supplies Corporation at a price of 2.65 cents F.O.B. Cuban ports—a price which is about a quarter of a cent lower than the average price for the last thirty years.

As you may realize, sugar is an essential product in the war effort. The National Geographic Society recently pointed out that the powder necessary to load five projectiles of a 16-inch gun required the alcohol production of an acre of the best sugar lands in Cuba.

However, Cuba is not cooperating with the United States alone in the economic field. The Cuban Government, by virtue of a military convention, signed at Havana on June 18 of this year, authorized the United States to set up a special training center for aviation and anti-submarine operating personnel in Cuba. This important air base, which has facilities for both land and sea planes, is practically completed. No one can ignore the importance of this air base, as well as of the others which the United States has established in Cuba, in the struggle against the submarines that are preying upon both Allied and neutral shipping in the Caribbean.

In addition, the armed forces of Cuba—Army, Air Force and Navy—are cooperating in the patrolling of our coasts and in the escort of convoys. The Cuban secret police, whose chief General Manuel Benítez Valdés recently visited Washington as a guest of honor of J. Edgar Hoover, head of the Federal Bureau of Investigation, is operating energetically against the German and Italian spies working in Cuba. A few months ago, the Cuban secret police, in cooperation with the FBI and the British Intelligence, trapped the Nazi agent Heinz August Lunin, who had entered Cuba under a forged Honduran passport and was transmitting radio messages to Berlin concerning ship movements. Lunin, who was recently executed, was an important link in a chain of spies having ramifications throughout Latin America.

However, the contribution of our country to victory is not just academic. A volunteer expeditionary force is being organized in Cuba to fight at the battle fronts. The Minister of Defense, Colonel Aristides Sosa de Quesada, as well as other high officials of the Government, have asked President Batista for permission to join the Cuban expedition that will fight for liberty at the front. Thus, with positive deeds, and not with empty phrases, is Cuba fulfilling her obligations of solidarity with the United States and

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Panama's Importance in World War

by His Excellency
Senor Ingeniero Ernesto Jaén Guardia
Ambassador of Panama

THE Republic of Panama is formed by the strip of land that links Central and South America, which is known as the Isthmus of Panama. It lies from East to West, having a length of about 480 miles and a width varying from 110 to 32 miles. It has 477 miles of coast on the Atlantic and 767 on the Pacific. The total area is 29,072 square miles and has a population of 632,000, excluding that of the Canal Zone, which has a civilian population of 43,000.

The Canal Zone divides the territory of the Republic of Panama in two parts; runs from North to South; is 41 miles in length from coast to coast and has a width of 10 miles, 5 of which are on each side of the Canal.

Panama City, the Capital of the Republic, with a population of 112,000, is situated at the Pacific entrance of the Canal, but is not included in the Canal Zone area. Neither is Colon City, with 45,000 inhabitants, and located at the Atlantic entrance of the Canal.

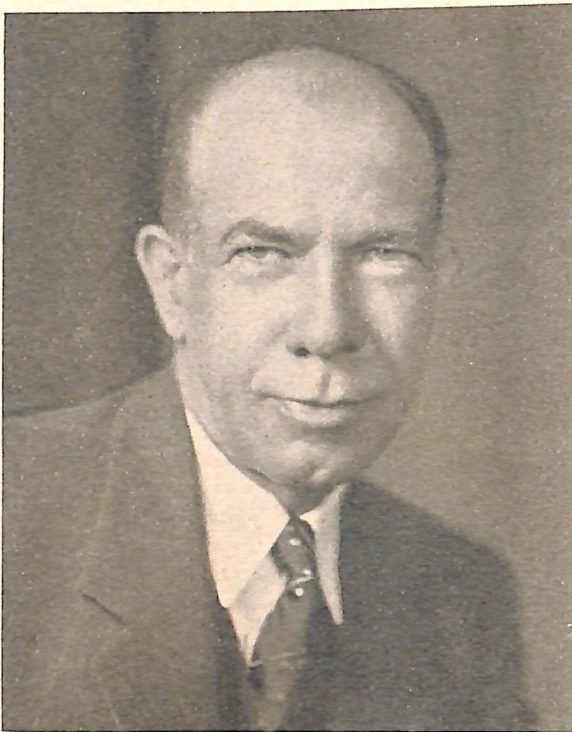
The Atlantic coast of the Isthmus of Panama was first visited by Rodrigo de Bastidas in 1501. A year after, Christopher Columbus, trying vainly to get through the American Continent to continue his voyage to the Orient, visited most of the coasts of Panama. He found out that the region was rich in gold and went back to Spain with this valuable information and samples of the gold mines from Veraguas.

In 1508 Diego de Nicosia was appointed as the first Governor of "Castilla de Oro," which was the name given by the Spanish Government to Panama, but failed to establish a foothold on the Isthmus.

In 1511 Vasco Núñez de Balboa, through whose advice the first foothold was established in "Castilla de Oro," took charge of the Government and on the first of September of 1513 departed with 190 Spanish soldiers, some friendly Indians and a few fighting dogs, to look for the Pacific Ocean after getting information about its existence through an Indian named Panquiaco. After going through craggy and rough mountain trails, through the wet and entangled jungle of the tropics, and fighting against unfriendly and savage Indians who used poisoned arrows, Balboa discovered the Pacific Ocean, one of the greatest achievements in the world's history, on September 25, 1513.

From that date on, the Isthmus of Panama began to acquire

its great importance as the crossroads of the world; many expeditions were then organized which departed from its shores to the North and to the South looking for new lands



to discover. The most important of these expeditions headed by Francisco Pizarro, one of Balboa's lieutenants, went to Peru, and Panama became the bridge through which passed the richness from the Incas to Spain.

So important became Panama that, during the period of the Buccaneers that followed the discovery of America, its shores and settlements were frequently assaulted by almost every known pirate of that time.

The discovery of the gold mines of California in 1848, brought Panama again to the attention of the world as the most feasible passage from the Atlantic to the Pacific Ocean, and showed, once more, the need for an artificial waterway across the Continent.

For many years, ever since the discovery of America, the thought of the need for an artificial canal prevailed in the minds of many outstanding statesmen throughout the world, bringing about numerous discussions and treaties without any practical result. In 1878 M. Lucien Napoleon Bonaparte Wise, procured a concession from the Government of Colombia to build an interoceanic canal across the Isthmus of Panama. The work was soon started by the Compagnie Universelle, but the so-called De Lesseps project collapsed in 1889 after two-fifths of the digging was done. The French disaster paved the way to American destiny.

After several projects were considered by the Government of the United States, a treaty was signed with Colombia, but it was rejected by the Colombian Senate on August 12, 1903, having voted favorably only the Panamanian Representatives in the Senate.

Panama, whose citizens proclaimed, single-handed, its independence from the Spanish yoke on November 28th, 1821, willingly

bounded its destinies immediately afterwards to the Republic of Colombia formed by the Great Liberator Simon Bolivar, with Colombia, Venezuela and Ecuador. After Bolivar's influence waned in the central Government of that union of nations, the last two mentioned countries separated, and Panama, after several unsuccessful attempts, seceded on the 3rd of November in the year of 1903, less than three months after the Hay-Herran Treaty was rejected by the Colombian Senate.

One of the first acts of the newly formed Republic of Panama was to sign a treaty with the United States providing for the construction, operation and protection of an interoceanic canal. Immediately, Uncle Sam rolled up his sleeves and got on the job. On August 15, 1914, the Panama Canal was opened to navigation, realizing, thus, the

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Soldiering in the jungles of Panama requires special technique. Here two "Bush-masters," members of Uncle Sam's Commandos of the jungle, build a "Wiki-Up." It's a pup tent raised from the ground to keep the men dry and protected from snakes.

China's Fight for Freedom

by His Excellency
Dr. Wei Tao-ming
Chinese Ambassador

A LITTLE over eleven years ago, Japan started to carry out her plan of world domination by attacking Mukden in Manchuria and swiftly occupying the three Northeastern provinces of China. Six years later the Japanese expanded their aggressive activities in an endeavor to conquer the whole of China. Although inadequately prepared in point of modern equipment, China unflinchingly gave battle to the invaders; and today the Chinese flag still flies proudly and triumphantly over a united and unconquerable people.

The world at first was only mildly interested in the staunch resistance of Chinese arms. Little did it comprehend the significance of Japanese aggression on a peaceful China. As later events proved, Japan's aggression, left unchecked by the world at large, was the forerunner of a series of acts of aggression by other predatory nations which eventually encompassed and placed in grave jeopardy the very security and happiness of all mankind.

We held the fort against the aggressors for more than five years. We suffered initial reverses. We lost our important cities and towns and long-cherished territories. We lost upwards of 3,000,000 casualties. Thousands of peaceful civilians have been killed and over 50,000,000 have had to abandon their homes. In spite of these bitter experiences and sacrifices, we have strengthened the spirit of an unconquerable people—the determination to

fight and to die so that the nation as a whole will survive.

We accepted the sacrifices and endured hardships with fortitude and tenacity because we knew we were fighting for a just and noble cause—the freedom and dignity of mankind. Today, eleven years after Mukden, and five years after Marco Polo Bridge, all peace loving peoples have joined the battle against aggression and we are marching on together under the same glorious banner for a common cause. Together with our comrades-in-arms, we are pledged to fight resolutely on until our flags fly triumphantly in the life-giving breeze of Freedom and Democracy.

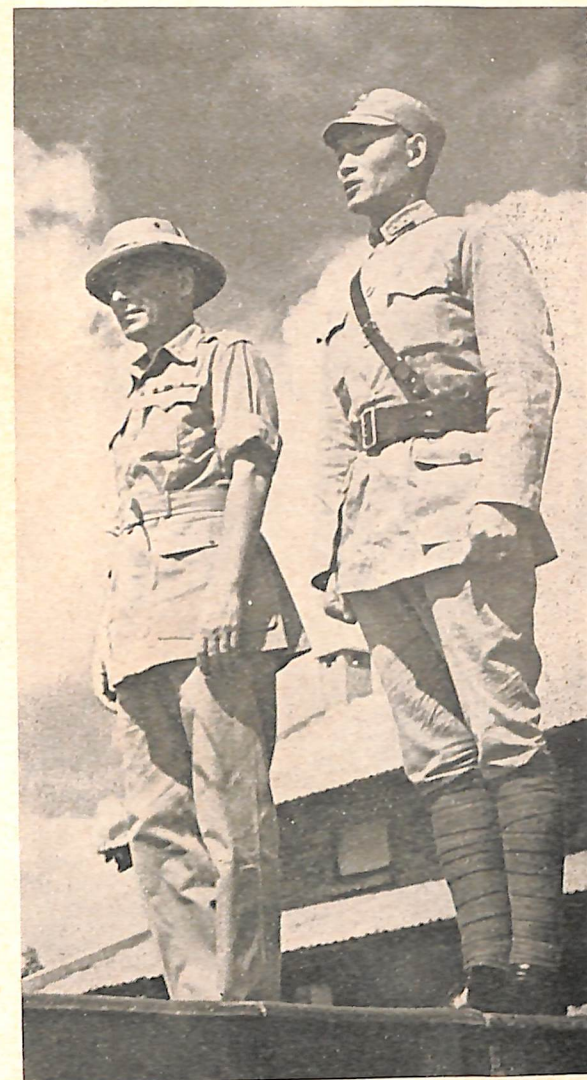
Grievous though our own losses have been, we have, nevertheless, inflicted corresponding losses on the enemy. Up to July 7th, 1942, China's armies have killed 1,000,000 Japanese soldiers and wounded 1,500,000. In addition, 29,924 prisoners have been taken. Besides these casualties inflicted upon the enemy, China's armies are holding down 1,000,000 Japanese soldiers in the Battle of China. In view of the comparatively meagre manpower of Japan, such losses represent a tremendous drain on her fighting potential. Were it not for these soldiers of China, the Japanese would have had a far stronger striking power; and it would surely have serious repercussions on the fortunes of the war.

It has well been said that China has pitted flesh and blood against steel and fire. That she stands unconquered today is a tribute to the triumph of the human spirit. Our record of the last five years is sufficient evidence that our fighting spirit will sustain us to the very end. But it may be seriously asked whether it is not tragic waste to permit China to continue pitting mere flesh and blood against steel and fire. We offer a reservoir of manpower which is practically limitless. If this manpower is properly equipped, China will contribute a much greater part in shortening the route to our common victory. Generalissimo Chiang Kai-shek expressed this succinctly when he said: "give us 10% of the equipment put out in America, and the Chinese army will give you 100% of the desired results."

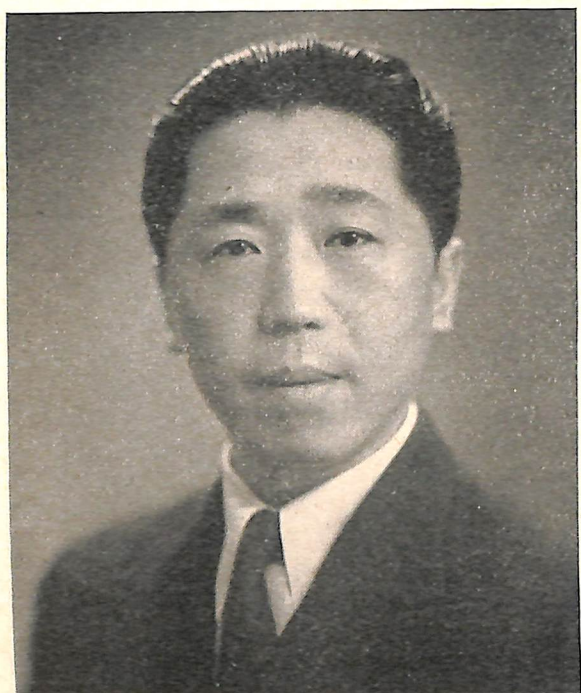


Generalissimo
Chiang Kai-shek

China stands ready to give her all in the attainment of these results for the vindication of our common cause. She has already given much. But she has also gained much. The spirit of the New China is a glorious tribute to the noble sacrifice of her heroic dead. It is a spirit which forgets self in the advancement of the common good. It stands emblazoned in the souls of China's millions as they go forth to meet the enemy with practically bare hands but backed by sheer determination. But they continue to go forth confident in the righteousness of the common cause of the United Nations, and determined to fight on and die if necessary to bring about the early dawn of the day when Freedom and Democracy will once again gladden and enrich the hearts of men throughout the world.



U. S. Army Photo
Part of the duties of General Stilwell's command is the training of Chinese fighters in India. Shown above is Maj. Gen. Franklin C. Sibert, AUS, and Lt. Gen. Sun Li-jung, who are supervising the instruction. General Sun, a Division commander in the Chinese Army, won wide acclaim for the rescue of 5,000 British troops who were trapped by the Japanese at an oil field near the Burmese border.



Dr. Wei Tao-ming

Financing the War

by

The Hon. Henry Morgenthau, Jr.

Secretary of the Treasury

READERS of the *Army and Navy Journal* need hardly be reminded that wars are won on the field of battle, not in the field of finance. But while victory may not be the result of financial triumphs, defeat might very well be the result of financial blunders.

The American people, through their representatives in Congress, have determined to devote one-half of our total production in the current fiscal year to the business of winning the war. Our task at the Treasury is to assist in converting this expression of purpose into an expression of fact.

The decision to devote one-half of our national productivity to war will inevitably entail great sacrifices in our physical comfort and well-being. Wise financial policy attempts to keep to a minimum the sacrifices that must be made—by encouraging the fullest practicable use of our productive resources, by accomplishing a prompt and adequate diversion of resources from peacetime to wartime use, by distributing sacrifices among our citizens with a maximum of equity and a minimum of hardship, and by causing the fewest possible postwar dislocations in the economy as a whole.

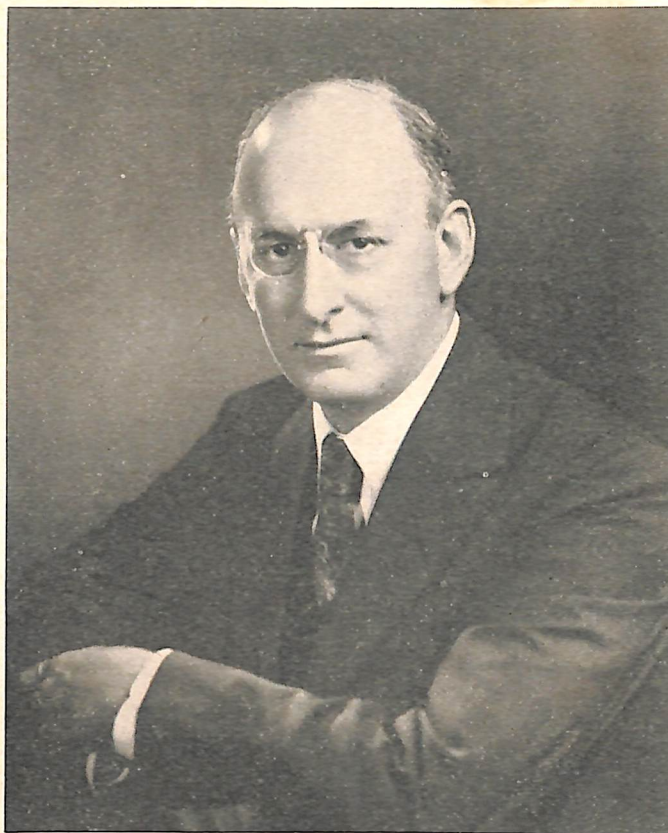
The diversion of goods and services from peacetime to wartime use should be accompanied by a corresponding diversion of purchasing power from peacetime to wartime use. The failure to enforce the necessary diversion of money incomes will not increase the amount of goods and services available for purchase; it will increase only the prices people must pay for the same amount of goods and services as before.

The fact that the material and financial sides of war-making are in reality complementary aspects of the same problem has often been obscured by the employment of financial policies running counter to the high goals we have laid down. Governments at war have been known to debase the coinage, issue new currency, and rely on the credit-manufacturing mechanism of the banks to provide them with the necessary resources to conduct war. These practices did not reduce by one iota the sacrifices people were called on to make during the war. They simply added to the necessary burdens of wartime sacrifice the wholly unnecessary, arbitrary, and inequitable burdens of war inflation and postwar deflation, with their attendant misery and injustice.

Taxes are the ideal method of distributing the costs of the war consciously, deliberately, equitably. Since the beginning of the rearmament program, we have increased tremendously government revenues from taxes. Taxes

were increased twice in 1940, once in 1941, and once again in 1942. Total tax revenue in the current fiscal year will amount to about 21 billion dollars. While this is nearly four times our tax revenue in fiscal 1940, it is only one-fourth of our estimated expenditures in this fiscal year. Against the standard of past achievement, the result is impressive; against the standard of present needs, however, it is not so impressive. We need still more tax revenue.

In theory there is no reason why the war



cannot be financed entirely from taxes; in practice, however, there are many obstacles to doing so. Any attempt to increase taxes tenfold from 1941 to 1943, the magnitude required, would undoubtedly dislocate vital sections of our economy, discourage individuals and firms from putting forth their best efforts, drain industry of necessary depreciation reserves, and work great hardship on people whose sacrifices might better be invited by way of a war savings bond than a tax receipt. From the practical viewpoint, therefore, we must borrow as well as tax.

Non-inflationary war financing requires, however, that as much as possible of government borrowings be directly from the people, and not from the banks. We must do all we can to avoid either creating new money or activating old money, but instead we must draw from the current income stream money

that would otherwise have been spent in buying consumers' goods. Our borrowing must not add unnecessarily to the total of purchasing power already in existence; it must transfer from private to public use the income that is being created by the war program itself. Only in this way can the Government check whatever tendency to a price rise it may be producing by its own spending program.

The purchase of war savings bonds accomplishes this very purpose. For the most part investments in these bonds represent savings from current income. This is particularly true of the investment in war bonds by workers participating in Payroll Savings Plans, through which some 23 million individuals are now investing approximately 8 per cent of their incomes. By January 1 it is hoped 30 million individuals will be investing regularly 10 per cent of their incomes.

The Treasury is leaving no potential source of non-inflationary funds untapped. Investments in government securities by Savings banks and Insurance companies provide the government with considerable institutional savings. Such nonbanking purchasers of government issues as corporations, fiduciaries, and individuals provide a growing market for both regular and so-called "tap" issues. Various government trust funds, like social security, constitute an important additional source of non-inflationary funds. Finally, Treasury Tax Savings Notes, designed both for individuals and corporations, provide the government with the kind of funds it needs by removing current income from the circulation while tax liability is accruing.

What the government will not be able to obtain from the people by way of taxes and savings must come from the commercial banks. While borrowing from this source is by no means necessarily inflationary in its consequences, a large part of it could undoubtedly have precisely that effect. Our policy, therefore, must be to keep this type of borrowing to an irreducible minimum, and at the same time employ added measures to control purchasing power and prices of consumer goods.

The overall objective of a sound wartime financial policy, I repeat, is to achieve maximum utilization of the nation's resources while distributing the burdens of sacrifice fairly and equitably. The attainment of these twin objectives is the Treasury's major task in wartime.

The Department of Justice and the War Effort

by

The Hon. Francis Biddle

Attorney General of the United States

ON the morning of August 4, 1918, the 10,000-ton American tanker *O. B. Jennings* was proceeding to Newport News from Plymouth, England. When she was 150 miles from her destination a German submarine attacked her with shellfire. The tanker's crew abandoned ship. When the vessel had been sunk, the submarine approached one of the lifeboats and drew alongside. At that moment a man suddenly stood up in the boat, jumped to the deck of the submarine, and began talking rapidly in German to the commanding officer. The two shook hands and without more ado disappeared together down the conning tower. The bewildered American crew never saw that shipmate again.

That was one of the ways it was done in 1918. Today there is another U-boat campaign in American waters. Our vessels again are being shelled and torpedoed. We hear of a heavy toll. What we do not hear, and shall not until such time as the details are no longer of any possible strategic value to the enemy, is the other side of today's story—a story of telling losses to the German fleet, of convoys that keep on getting through, of oil slicks rising to the surface, one after another, impermanent markers of the graves of these enemy craft.

Behind the scenes of submarine warfare there is a story of espionage and counter-espionage, of Axis agents attempting to furnish the U-boats with necessary information on the whereabouts of American ships, and of men of the Federal Bureau of Investigation thwarting that attempt. All of that story cannot be told yet—for obvious reasons—but the effectiveness of the FBI and the other Federal agencies which cooperate with it may be measured by the fact that the enemy has found it impossible to carry on this work in the United States and has resorted to round-about communications from points outside the borders of this country.

Now and then a sample of what has gone on does come to light and is made available to the press when the details are no longer of practical use to the enemy. Last July 9, for example, Herbert Karl Freidrich Bahr, coming to this country in the guise of a refugee from Nazi Germany, was arrested by the FBI on board the Swedish ship *Drottingholm*. Bahr was an American citizen, who had gone to Germany in 1938 as an American Exchange Student. However, during his stay there he had joined the Gestapo, and after going through special training, it was his purpose to come back to the United States and engage in espionage for the Nazis. He had been taught the use of secret inks and other tech-

niques for sending information, and he was furnished with cover addresses in Spain, Switzerland, and South America.

This young man was all ready to do business—had not the FBI been waiting for him at the pier when the *Drottingholm* reached this side of the Atlantic. As a result, Bahr will have a rather difficult time getting any information out of this country. He is now in prison, where he has been sentenced to remain for the next thirty years. Other incidents of this sort, owing to surrounding cir-



cumstances, have been made public. But there is far more to the story of the fight to make undersea warfare as difficult and expensive as possible to the Germans, through lack of the information that submarine commanders must have if they are to operate at a minimum of risk and a maximum of efficiency.

Today the undersea raider is on his own. He is not getting the help from these shores which he had expected. The far-flung system of espionage which Germany had hoped to keep in operation for the U-boat campaign of 1942 is defunct. And in the absence of that help, the marauder must catch as catch can. Of course, in the heavily trafficked sea lanes, he has found prey. But he has paid too. The whole U-boat campaign is a far costlier operation than it was in the last war. More craft are required, diverted from other waters. More are sunk. But the convoys to Britain, to Australia, to Russia, go on.

What has happened to that elaborate network of German espionage? Why has it fallen down on the job? First, because much of the work must be done ashore, and America, through Government agencies assigned to the task, is a far more vigilant nation than she has ever been before. Second, the protection at sea, the facilities for patrol of American waters, are ever expanding and becoming more efficient. And third, the preventive and counter-espionage forces of this country—the Federal Bureau of Investigation of the Department of Justice, and the intelligence offices of the Army and Navy—all have been coordinated, all work closely together.

G2 of the Army, ONI (Office of Naval Intelligence) and the FBI began piecing this effective war machine together in the summer of 1939. Coordination was worked through many important lines. An interdepartmental committee for two-way visa control over movements into and out of the country, for example, was set up by the State, War, Navy and Justice Departments. This tightened the gates to meet specific wartime requirements of each agency. Immigration and Naturalization inaugurated an interdepartmental check on applications for citizenship, channeling them for clearance through the other offices. Also in 1939 the FBI undertook a survey looking to a nationwide program of plant protection under Army supervision. That program is now operating. Espionage and sabotage have become as difficult ashore as they are at sea.

Between the FBI and the intelligence offices of the Army and Navy there is a constant exchange of information. They are in daily liaison. An example of how it works out: Counter-espionage operators of the FBI, assuming the role of Nazi agents in this country and working their way into a ring of Nazi spies, were operating a short-wave radio station for many months in direct contact with Hamburg. The information they got was valuable to this country, as far as it went. But the fact that they were pouring a steady stream of misinformation into trusting German hands was of even greater benefit to us. That which came in and that which went out over the secret station were subjects of daily consultation of the FBI, the Army and Navy. The misinformation which the Nazis got was officially approved by the best American authorities!

Also supporting the armed forces these days is the Criminal Division of the Department of Justice. Sedition is a crime. One of the clearest categories of sedition was the ef-

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The United States Navy Today

by
The Hon. Frank Knox
The Secretary of the Navy

IT is a year since "Pearl Harbor" rendered an abrupt decision on the debate over America's vulnerability to invasion.

That issue is closed. The judges' decision was rendered in the shape of bombs and torpedoes. It was confirmed by the shelling of the California coast, the probable dropping of incendiary bombs on Oregon forests, the enemy occupation of Alaskan islands, the landing of saboteurs from enemy submarines on our east coast.

Our effort now is to repel invasion and to carry it to the enemy. But debate continues.

It is our heritage from the town meeting and the cracker-barrel forum of the village grocery. Nobody would advocate its surrender or prohibition. The right to argue is one of the privileges we are giving our blood and substance to preserve. Lively debate over the conduct of the war is in itself proof that the public is not apathetic or complacent.

There is, however, a tremendous difference between reasoned discussion and unreasonable bickering, between constructive criticism and destructive fault-finding. The evil takes

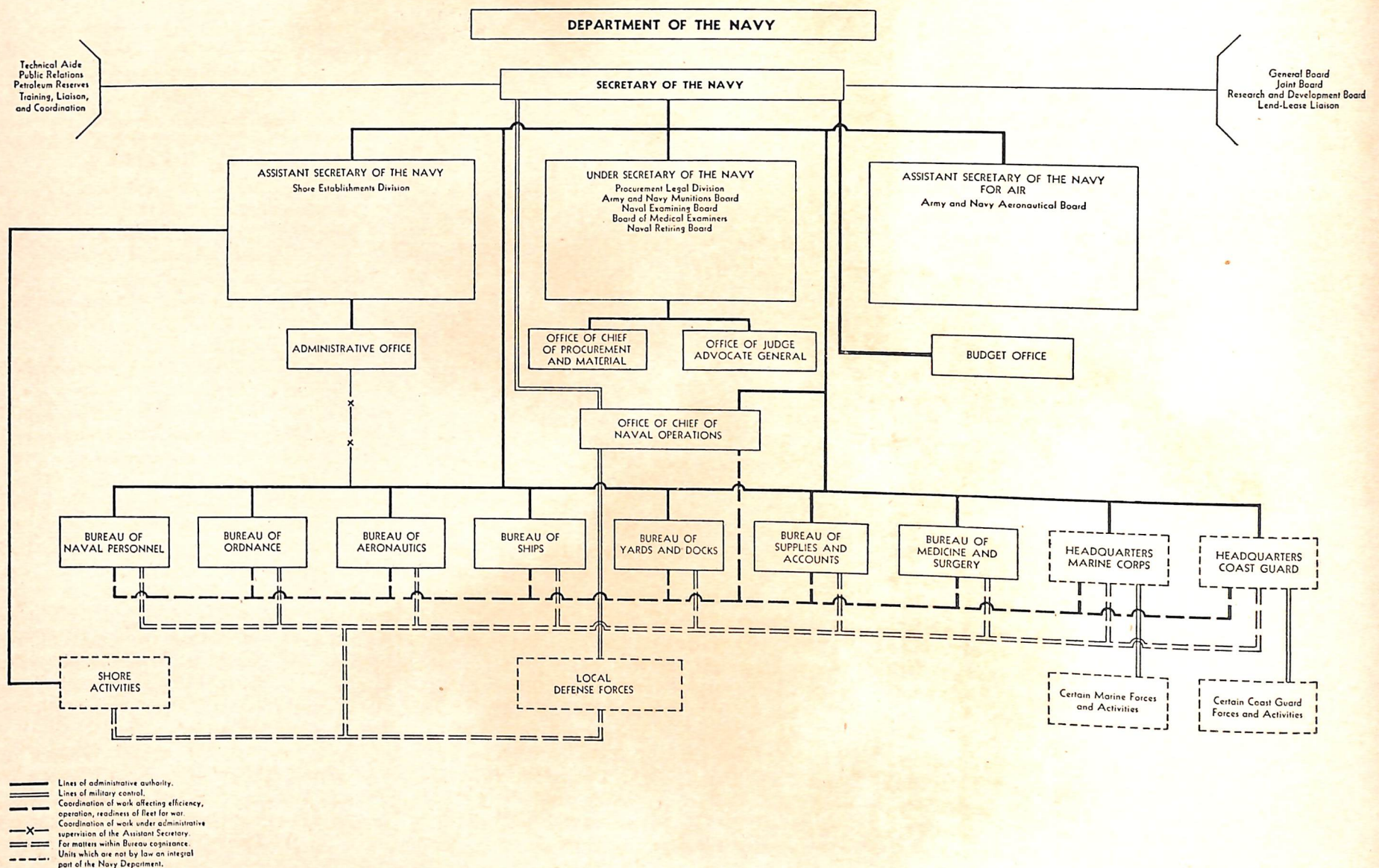
advantage of the protection afforded the wholesome and the good, just as crab grass thrives in the best of lawns, to employ a thoroughly un-nautical metaphor. And, from a certain oblique point of view, even crab grass can be made to look good, just as crabbing criticism can be rationalized.

We Americans are amateurs at war. We have insisted upon retaining our amateur standing until long after the undisguised enemy had thrown away the rule books, and forced our peace-loving friends to do the same.

Even after we were brutally kicked into a war for survival, we as a nation expected our fighting forces to implement themselves with left-overs. We, as a nation, had acquired another and indefensible habit, which heaven knows was no part of the heritage left us by our fighting forefathers—passing the buck.

We substituted the ostrich for the eagle, and displaced Molly Pitcher with Pollyanna. We exchanged the slogan of "Trust in God but keep your powder dry" for the motto "It can't happen here." The rubber we did not

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Resources for Victory

by

The Hon. Harold L. Ickes

Secretary of the Interior

“OUR immediate and primary function is the full mobilization of the Nation’s natural resources for war.” These words were written in a Departmental order on the night of December 7.

The Department of the Interior, which is the Government’s primary agent in the peacetime conservation of natural resources, lost no time in mobilizing its activities for war. Employees and bureaus have been placed on a war emergency basis. A War Resources Council was created to coordinate information and action relating to natural resources.

The natural resources which the Department of the Interior controls, and is putting at the disposal of the armed services, are strategic and vital. They include oil, power, fuel, helium, food, land, water and timber. Without these materials we could not build our planes, ships, tanks and guns.

To mobilize ample supplies of these war necessities, the Department of the Interior has set in motion a 52-point action program. This program is based upon the Department’s long experience in conserving the Nation’s natural resources. For example, the Geological Survey and the Bureau of Mines, after years of exploration and experiment, have enabled our metallurgical industry to turn unused, low-grade materials into essential war metals. New processes which these Interior agencies have developed are now being used, while other important experiments are being rushed into the final testing stages. Old ore veins are being worked on an increasing scale, while new ones are being discovered and opened up. The Department furnishes the War Production Board with information on the expected quantities, speed of availability and costs of production of all strategic minerals. To prevent sabotage and waste, the Department exercises a rigid supervision over the use and purchase of explosives throughout the country.

Petroleum is another one of the Department’s responsibilities. The Office of the Petroleum Coordinator, who is also the Secretary of the Interior, is organizing the production of petroleum products for war purposes. The task of the Petroleum Coordinator is to make sure that the crude oils, condensates from high pressure fields, and natural gasolines needed for aviation gasoline and lubricants, toluene, synthetic rubber, and other specialized products, will be available quickly and fully. For this purpose, high octane gasoline plant capacity has been multiplied, transportation systems have been reshaped, marketing programs have been formulated,

and conservation measures have been carried out. Though much yet remains to be done, the machinery for the efficient handling and production of petroleum is already functioning with considerable smoothness.

To implement the Nation’s war program, electric energy to the extent of more than 150 billion kilowatt hours is needed. The Department is now producing at the rate of more than 7 billion kilowatt hours annually. Plans are under way to triple the 1941 output, particularly in the areas where the principal



undeveloped resources of the Nation are located.

As Coordinator for Solid Fuels, the Secretary of the Interior is also responsible for the efficient organization of coal and coke. It is estimated that more than 600,000,000 tons of anthracite, bituminous and lignitic coals, and 70,000,000 tons of coke will be required in 1942. Proper organization, now under way, will provide an adequate war-time supply of coals and coke for all ascertainable needs.

The Department of the Interior controls the only major sources of helium in the world. This year the record production of the 1941 fiscal year will be doubled.

Food is another important resource to which the Department of the Interior is contributing. Through the Department’s Fish and Wildlife Service, fishing products are being raised by 1½ billion pounds. Under the direction of the Department’s Grazing Ser-

vice, products of 12,000,000 head of livestock on Federal ranges are being increased up to 10 per cent. In our island possessions and territories, which are under Interior’s jurisdiction, cane and beet production is being increased and a food-drying program is being conducted to relieve demands on tins and containers.

About one-third of the Government’s forest resources are under Interior, including Alaska. These are being administered on a sound conservation basis—mature trees being cut for commercial use while young trees are spared for the future. Under this kind of sustained-yield management, timber production from the Oregon and California Revested lands, as well as from the forests of the Indian reservations, is being increased to a billion board feet in 1942. Interior is also mapping areas of military significance, and it also prepares, produces and supplies maps required by the armed forces. The Department’s trained crews for combatting forest fires are also acting as air raid detection units.

Under the Department’s war program, public lands are being withdrawn so as to permit the establishment of military ranges, cantonments and aviation fields, as well as town sites. Meanwhile, already established national parks are providing special facilities for the recreation of members of the armed forces.

While the Department is utilizing the natural resources of the Nation to help win the war, it does not neglect its prime peacetime function, which is to guard and conserve our country’s natural wealth. Despite the exigencies of war, everything possible is being done to protect the resources for future use.

If the intelligent use of natural resources can help win the war, then the Department of the Interior is justified in considering itself an essential war agency. Recently Congress cited Interior as more closely related to the war effort than any other department, except War and Navy. This naturally pleased the men and women on the staff of Interior, for it assured them that they were on the right track.

In another phase of its work the Department felt immediate percussion of the war. As a Governmental agency in which there has been placed the Division of Territories and Island Possessions, it had Federal civil supervision over Hawaii, Alaska, the Philippines, Puerto Rico, the Virgin Islands and a number of other islands in the far Pacific. The effects of the war were more immediate in these possessions than on the mainland and strained the civil facilities available to their

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Agriculture and the War

by

The Hon. Claude R. Wickard

Secretary of Agriculture

FARMERS of the United States are waging a gigantic battle in the fight for freedom. They have just won the first round of their battle. Farm production in 1942 was the largest in our history. It was a tremendous gain over the previous high mark set a year earlier. With mounting handicaps and still heavier demands, they face a second round next year that will tax their resources to the utmost.

Our farmers are feeding the U. S. fighting man better than any other on earth. They are helping feed the military forces of other Nations at arms against the Axis. They are feeding our workers in the war industries and our civilian population generally as no other people in the world can be fed.

To do this job, sights had been set as far back as September 1941, for unequalled production in the 1942 crop year. Pearl Harbor made even those sights too low. Promptly farmers aimed higher. They revised their planning to fit the new goals called for by the Department of Agriculture. They set out to provide more meat, milk and eggs and more of other vital products. Particularly they aimed for more vegetable oil crops to make up for the Far Eastern vegetable oil shipments cut off by the Japanese.

As the record shows, they went all-out in every phase of production. With the help of exceptional weather, they gave their country a food, fiber and oil production 40 percent greater than that of the war year of 1918. They surpassed 1941's all-time record by 12 percent. And they did this despite scarcity of manpower and other handicaps at every turn.

Let me be a little more specific. They broke the world records of 1941 notably in these vital items: Beef and veal by one billion pounds; pork by one and a half billion pounds; lamb and mutton by 60 million pounds; milk by nearly two billion quarts; eggs by about 600 million dozen; soybeans for oil by five million acres; peanuts for oil by two million acres.

But, farmers realize that, no matter how ably they have produced to date, they have won only the first stage of the agricultural battle in World War Two. The second year after Pearl Harbor, they know, will bring a vastly more critical test, with food fitted closely into the victory strategy of the United Nations. They know that U. S. production must anticipate the possible freeing of subjugated nations and the feeding of peoples whose larders have been stripped bare by the Nazis.



The job is huge and there is no time to lose. Already U. S. farm people are mapping a farm offensive for 1943. Only by the best of strategy in their own fields can they support the military offensives across the Atlantic and the Pacific.

They must win this great food battle with a reduced farm force. This means that man-

power must be used with maximum efficiency, must be turned first to primary crops. Above all else, this means dairy, livestock, and poultry farms. Among the planted crops, preference must go to those that provide basic nutrition. Critical manpower, machinery and tires cannot be wasted on non-essentials. Resources expended on each product must be scaled to hard necessity, to providing a strict, war-time diet and few frills.

The farm production goals for next year are based upon estimates of all the different needs for American food, and also upon our capacity to produce, process and transport food. This work was done largely by the Foods Requirements Committee, of which I serve as Chairman. This group, made up of representatives from nine Government agencies, has brought together their specialized knowledge of requirements for our food, and facilities for growing, processing, and distributing it.

Working together, the Foods Requirements Committee and the Combined Food Board of this country and Great Britain have, in effect, pooled the food resources of the United Nations. These total food resources have been allocated according to military and civilian needs, location of supplies, nutritional value of the foods represented, and the facilities for transporting them.

Food requirements of our own military forces, and those of our allies will be large in the year ahead, and they likely will grow as the war progresses. In 1943 it is expected that military and Lend-Lease requirements will be half again as large as in 1942 and will take one-fourth of our total farm production. Workers who man the machines on the home production front are working harder and longer and have much larger purchasing power. This means that our civilian families need more food than ever, and have the money to buy all they need, and more.

Since we must first meet the requirements of our fighting forces and of our allies, some foods will be available for civilians in lesser amounts than normal, and we will not have the great variety of foods we have always enjoyed. For example, meat will be available in reasonable amounts, but not in the quantities civilians would like to buy it. There will be less canned fruits and vegetables, and smaller amounts of some dairy products. But, in the main, our civilian population can count on a food supply that will meet adequate nutrition standards.

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Progress Toward Meeting 1942 Farm Production Goals

Crops	1942 Production Indicated Nov. 1	Percent 1942 goals exceeded 1941 production	Percent 1942 production is above or below goals
All corn	3,185,141,000 bu.	1	19
All wheat	984,046,000 bu.	-16	24
Oats	1,369,540,000 bu.	2	14
Barley	426,188,000 bu.	-6	18
Rye	59,665,000 bu.	6	24
All hay	104,914,000 tons	0	12
Grain sorghums	149,795,000 bu.	-22	25
Flaxseed	42,682,000 bu.	14	19
Soybeans	209,953,000 bu.	43	37
Peanuts	2,810,525,000 lbs.	154	-25
Rice	70,086,000 bu.	20	8
Beans, dry edible	2,096,200,000 lbs.	9	3
Peas, dry field	725,500,000 lbs.	65	12
Potatoes	379,624,000 bu.	7	-1
Tomatoes, canned #2	33,000,000 cases	27	-18
Peas, canned #2	35,500,000 cases	32	-7
Percent 1st 10 months, 1942, is above 1941			
Percent increase above 1941 called for by goals 1941			
Animal Products			
Beef ¹	5,384,529,000 lbs. ²	8	14
Pork and lard ¹	7,242,644,000 lbs. ²	17	18
Eggs ²	3,544,750,000 doz.	13	15
Milk ²	102,673,000,000 lbs.	8	4
American cheese	835,000,000 lbs.	33	31
Evaporated milk	3,150,000,000 lbs. ²	20	17
Dry skim milk for human consumption	505,000,000 lbs. ²	46	60

¹Federally-inspected slaughter, dressed weight.

²Produced on farms, Jan.-Oct., 1942.

³Estimates for the month of October.



U. S. Navy Photos
Admiral Ernest J. King, USN
Commander in Chief, U. S. Fleet
Chief of Naval Operations



Admiral William D. Leahy, USN-Ret.
Chief of Staff to the Commander-
in-Chief of the Army and Navy



U. S. Army Photo
General George C. Marshall, USA,
Chief of Staff of the Army

The United States Fleet

by Admiral King

NO one appreciates more fully than I the keen interest taken by the American public in the activities of the U. S. Navy. As I have stated elsewhere, I should be deeply concerned if you were not so interested, for in the final analysis the Navy belongs to the people of the United States and is responsible to you for the proper discharge of the great trust you have placed in its hands.

As citizens of a democracy we have become accustomed to an unrestricted flow of information on all subjects in which we are interested. We have built up and supported vast and powerful organizations whose sole purpose is to keep us informed; and we jealously guard the rights of a free press as being a major factor in our democratic processes. Because of these facts, some of us expect, even in the midst of a total war, to receive a continuous flow of information about military and naval activities; and we overlook the fact that to publish this information indiscriminately would, in fact, give "aid and comfort to the enemy."

I should like to be able to inform you fully and completely of our broad strategic considerations and the reasons therefor, of the detailed manner in which each campaign or battle was conducted, of what we teach each one of your sons to make him an efficient fighting man, and of the magnificent manner in which these men live—and die if need be—in the service of their country; but a moment's thought will show you why this is impossible. It is impossible because there is no way in which I can tell you these things without also telling our enemies, who avidly desire any detail of this nature which may assist them in their ruthless prosecution of the war. With these facts in mind, and in the hope that within these restrictions I may be able to explain

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Global War

by Admiral Leahy

IN this Global War, with its fateful consequences to Humanity, the world appears to the strategist and logician as a mass of water dotted with islands of land. Merging into each other, the oceans constitute a single area, and an event transpiring in a part of one of them has a direct relationship to an event occurring elsewhere. For example, a convoy passing through the Arctic Sea bound for Murmansk must be coordinated with an attack upon the Solomons in the South Pacific, and the attack upon the Solomons must be coordinated with an operation at another far distant point. Further, such coordination must maintain in all the activities of the United Nations. Whether it be the British Navy silently engaged in the arduous and monotonous duties of a blockade, or the Russian Black Sea Fleet exacting toll from the Nazi sea borne supply lines, their efforts must be coordinated to insure a weakening of the foe at the proper time and place. Again, on land, as all men now can see, the debarkation of American and British troops in North Africa may force the German hordes to abandon their ambitious designs upon Russia and her oil fields, and the Caspian Sea route to the Near East, and to pass to the defensive, an action which may enable the magnificent Red Army, still in being in spite of the murderous assaults directed against it, to launch an overwhelming offensive.

If we were fighting alone, a complete defeat of all the aggressors would be well nigh impossible. We would be faced with enemies controlling territories capable of supplying them with ample food stuff, ample strategic materials, and ample production facilities operated by ample slave labor. Fortunately, we are blessed with Allies fighting in the common cause of freedom and the rights of men. To them is largely due the comparative safety

Army of the United States

by General Marshall

THE growth of the Army from one of thousands to a force of four million men during the past three years indicates the solid foundation upon which we base our plans for the future. The increase in mass is impressive, and the rate of increase even more so. But the most reassuring phase is reflected by the highly trained personnel, commanders, staffs and troops that are being developed, despite the size and rapidity of the expansion.

The trickle of machines, munitions, and material which reached us in 1939 has become a swell in 1942, but it is only a harbinger of the flood to come. These are the tangible and quantitative signs of our progress. Our major inspiration, however, comes from the realization, as a result of his performance in action against the enemy, that the American soldier is strong, devotedly loyal, highly effective in combat, and fully determined upon destruction of the enemy forces which oppose him.

which we enjoy. Because their fight is our fight, a ship lost by them, a regiment of theirs destroyed, is our loss. Therefore, we glory in their successes, just as they glory in ours.

We must never forget that it is the common effort which will bring us victory. On our part we rapidly are becoming the Arsenal of Democracy the President envisioned. From our factories are issuing steadily increasing quantities of planes and tanks and other munitions. Our ship yards are performing miracles in speedy delivery of all types of warships and merchantmen. With submarine sinkings under better control, there is warrant for the hope that in 1943 the 16 million tons of the new merchant shipping expected will give us the greatly needed increased

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Industry and the Army of the United States

by

Hon. Robert P. Patterson

Under Secretary of War

AS a nation we have one job: to destroy the military strength of the Axis powers so completely that they will never rise again to disturb the peace of the world. That job will have to be done on the battlefield, but we shall require the fullest mobilization at home of all our resources of manpower, machinery and materials if we are to attain our goal.

More than any war in history, this war has demonstrated the inter-dependence of the military and the industrial fronts. However well-trained or well-led our troops may be, however gallantly they may fight, we cannot hope for victory unless we give them the weapons a mechanized army needs.

Under these circumstances we must regard our theatre of operations as extending from the combat zone to our factories and shipyards and even beyond to the mines and forests from which we get the raw materials for our instruments of war. We must see to it that no holes open up anywhere along that line.

Having a full crew of miners in an Arizona copper mine is as important to the Army as having a full complement of soldiers in a Caribbean island base. An aircraft factory that is operating only eight hours a day because it does not have enough metal to keep going around the clock can cost us more planes than we have lost in any engagement against the Nazis or Japs.

We can't attack the Nazis with tanks that never come out of the factory. We can't sink a Jap fleet with blueprint battleships or bombast bombers. We can't put our marksmen behind the sights of phantom guns. We must be sure that we have more and better tanks, more and better planes, more and better arms of every sort before we can be certain that we will win this war in the shortest possible time and with the least sacrifice of American blood.

That is why the Army is no less concerned about how well the war is going in the steel mills of Pittsburgh than it is about developments in the South Pacific. Every upward movement in the chart of industrial production represents progress for the United States and its allies in the battle map of this war.

We have made herculean advances in the twelve months since the Japs struck at Pearl Harbor. We have taken the most highly developed industrial system in the world and harnessed its enormous productive energies to the engines of war. We are turning out four times as many weapons today as we were at the beginning of the war and impressive gains have been recorded in our effort to plan and coordinate production in such a way that we will be sure we get the arms and equip-

ment we need most in the greatest volume.

There is no room for self-satisfaction or congratulation in this record. We are not getting all we could get out of our industry. We are still far from producing enough to meet our own requirements and those of Britain, Russia and China. Even now comparatively few of our plants are running their machines every hour of every day. Measured on a round-the-clock basis, we are still using less than half of our productive capacity.

This is no 50 per cent war for the men on



the battle field. It cannot be a 50 per cent war for us at home. It is our hope that efforts now under way to stimulate the output of strategic raw materials and the more efficient program of materials distribution set up under the newly-instituted Controlled Materials Plan will do much to overcome the shortages that have retarded production and prevented many plants from going on a three-shift schedule.

We are not overlooking the fact that it is as important to use men full-time as it is to use machines, recognizing always that what constitutes full-time work in the case of a man is very different from full-time work in the case of a machine. The strength and skill of our workers are military assets in exactly the same sense as the strength and skill of our soldiers, and they must be brought to bear

against the enemy with maximum effectiveness if we are to end the war in the shortest possible time.

We must determine in each industry how many hours a man or woman can work without undermining his health or slowing down his machine. In some industries forty-eight hours may prove the most fruitful schedule. In others it may be fifty-two or fifty-six or even longer. We do not want to overtax our workers; we dare not undertax them.

Our object must be to get the most work done with the smallest number of workers. Our manpower reserves are too low to permit any waste or diffusion. It is not enough to lengthen working hours in those plants engaged directly in war production. We must also lengthen them in plants doing essential non-war work so that these plants can get along with fewer workers and release part of their present work force to war industries.

The average work week in all manufacturing industries, war and non-war, is only 42.8 hours. If we could raise that over-all average to forty-eight hours, we could get the same volume of production with 1,500,000 fewer factory employes. In other words, 12,500,000 workers could do the work now done by 14,000,000, leaving the others free to step up our total output.

The latest government figures indicate that some 38 million workers are employed in non-agricultural occupations in this country, of whom about 15 million work in war industries or in such related fields as the transportation of war materials or the production of electric power for war uses. In addition to these workers, our work force embraces 10½ million farm workers, all of whom have their part in the great common effort on which we are embarked. There are four million self-employed and domestic workers in the country.

Many of the 23 million non-agricultural workers not now engaged in war work will be drawn into such work as further curtailments are ordered in non-essential services and materials for civilian supply. Even this will not meet our full need and it is estimated that we shall have to recruit at least four and one-half million additional workers before the end of 1943.

Since our military and naval forces will be growing at the same time from a present total of about 6 million men to something between 9 million and 10 million men, it is clear that most of the newcomers to the ranks of industry will have to be women. We will also have to make fuller use of those persons who have been denied their rightful share in

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Industry and the United States Navy

by
Hon. James V. Forrestal

The Under Secretary of the Navy



devoured millions of tons of steel and copper last year, has been similarly increased. Accustomed as they have been to enormous tasks, America's industrial leaders had to readjust their sights when confronted with the scope of the problem they were now asked to tackle. One thing, they saw, was certain: no important industry in the United States would remain unaffected.

Naval production alone demands the fullest efforts of scores of industries. Shipbuilding, of course, feels it first of all, together with the aircraft plants that are turning out

WHEN Germany overran Europe with a force of thousands of tanks, planes and big guns, and when Japan unleashed a Navy totaling nearly 250 combat ships and a Naval air force of thousands of planes against the islands of the South Pacific, the experts dropped their jaws and said it was impossible. They had figures to prove that the industries of the Axis were incapable of such war production.

The answer, of course, is that Hitler and Tojo disrupt, convert, and create industries as expediency dictates. They possess complete power over their war production and exercise that power ruthlessly. Such methods are not for America. Such tactics are completely antipathetic to the very principles for which we are fighting. In this country, a tremendous reorganization and rededication of industry is taking place, but it is on a basis of voluntary co-operation. Management and labor alike, are putting their shoulders to the wheel, free men banded together in the common cause of human liberty.

For America, as much as for the aggressor nations, this is a war of production. This war, as someone has said, is a race to make things. This is Total War, in which the men who fight share the credit for every victory with the men who build. And these things are as true of the Navy as of the Army.

The general public is only beginning to realize the infinitely greater part played by industry in World War II than in World War I. The 1918 warplanes were fashioned of wood and carried about 40 pounds of bombs. Today a heavy bomber requires about 25,000 pounds of aluminum, and carries over 4,000 pounds of explosives. It is easy to see why the burden imposed on production machinery by the modern Navy is so huge.

The Navy is asking for production undreamed of twenty-five years ago. Then we were thinking in terms of a one-ocean Navy. Now we must have one large enough to fight on all of the seven seas. Then we were content with smaller ships often made of wood. Now we are building the mightiest fighting ships that have ever sailed the seas, and we are building almost all of them of steel. Even before Pearl Harbor, the Navy's shipbuilding program required many hundreds of thousands of tons of metal per year. Since then, our requirements have increased at a rate far beyond peace-time expectations. In addition, the merchant shipbuilding program, which

Navy planes. Then come the steel companies that supply the shipyards and the aluminum plants that feed the plane factories. Heavy machinery manufacturers work overtime on Diesel engines, electric motors, steam turbines, and countless tons of similar equipment. Oil refineries are taxed to turn out vast quantities of fuel oil, aviation gasoline, and lubricants. Manufacturers of optical instruments, explosives, paint, textiles, and no end of other items, are swamped with orders to help equip the ships and the sailors who man them. Railroads must put on extra cars to haul all this material from place to place. And so it goes.

There are no answers to those questions. This is a war without limit, statistically speaking. There has never been so damaging a naval war in all history as that which is raging now in the Pacific. We can only base our estimates on ultimate aims. And we have but one ultimate aim—victory. So we simply must build and equip and fight until we overwhelm our enemies through sheer force of numbers. We must keep the ships and planes and men pouring forth until victory is ours. This is the job of the Navy and Industry alike. We shall do it together.

Strides are now being made in solving this problem as well. Almost all non-essential civilian production has been either halted or curtailed. Strategic raw materials have been severely rationed. Nor can we ignore the fact that Japanese conquests in the Far East have made available to the enemy, great stores of potential weapons. They must not be given the time or the opportunity to fashion these gains into guns that will be used against us. We must seek out every source of raw materials, scrap or substitutes, and we must do it now—time does not permit delay. Although the immediate outlook for some materials is not so bright, we may be confident that America's ingenuity will not fail in this crisis.

What will be the future requirements of the Navy? What will be its demands of aluminum and powder will it need before this war is over?

There are no answers to those questions. This is a war without limit, statistically speaking. There has never been so damaging a naval war in all history as that which is raging now in the Pacific. We can only base our estimates on ultimate aims. And we have but one ultimate aim—victory. So we simply must build and equip and fight until we overwhelm our enemies through sheer force of numbers. We must keep the ships and planes and men pouring forth until victory is ours. This is the job of the Navy and Industry alike. We shall do it together.

American industry, temporarily staggered though it was by the job imposed on it, is equal to any task. It has given its answer in the form of action. In the past two years, thousands of new plants or plant expansions have been projected, many of them now completed and in full production. Conversion of existing production facilities has been pushed at top speed—from the smallest back-alley repair shop to the entire automobile industry. Full conversion has usually been impossible because America's mass production is so highly developed; that is, most of the machine tools in large plants are single-purpose machines that would have to be scrapped and completely rebuilt to do any other job. Nevertheless, the machine tool manufacturers are turning out more versatile machines at such an amazing rate of speed, that the main production problem is now the availability of raw materials.

The Navy's Shore Establishments

by

Hon. Ralph A. Bard

Assistant Secretary of the Navy

"IN a genuine sense, bases are ships. They are part and parcel of the fleet, as well as of the sea power which they represent jointly with the fleet and merchant marine, the sea power which is intimately a member of our national structure and indispensable to the national economic life."

Thus several years ago wrote a distinguished contemporary authority on naval subjects. Today his words are even more true than when they were written. We are living in a period when technological progress is bringing great changes in naval warfare. As is all such periods it is not always easy to see what weapons and what tactics will finally emerge in a dominant position. But there is one trend which has been consistent. Every change that is taking place in naval warfare increases the necessity not only of bases but of a multitude of other shore establishments. Improved guns mean increased consumption of ammunition. Faster ships use up their fuel more quickly than those which they replaced. More complicated machines mean more training facilities to teach the men who must use them. And above all, the constantly increasing importance of the airplane in naval warfare emphasizes a craft which is, above all others, tied to its bases and which demands huge and complicated ground facilities for operations and maintenance.

When this trend is combined with the tremendous expansion of all our facilities, it may easily be imagined the vast scope of the naval shore establishments which result. Let me call the roll of the things which the Navy must do ashore to keep our fleets at sea.

Fundamental, of course, to our war effort are the plants which build the materiel of war—shipyards, gun factories, armor plate factories, airplane factories,—factories which make all the thousands of items which a ship or plane must take to sea.

Some of these, Navy yards, Ordnance factories and Aircraft factories, are operated by the Navy Department itself. Others, including a considerable number of ordnance plants, are owned by the Navy but managed by private companies. And, of course, today more than ever, there are thousands of private companies manufacturing every sort of materiel, from ships to uniforms, for the Navy. The Navy is proud of the fact that conditions and wages in our Navy yards are among the best in the country and in the world. And it is significant also that by encouraging a system of both private and governmental construction of ships, the Navy has fostered a healthy rivalry as to the speed, excellence

and cost of the finished product.

Even more important, perhaps, in time of war, are the facilities we must have for the maintenance and repair of our ships and planes. We must have shops and yards and drydocks where ships can be hauled out, where airplane engines can be taken down and rebuilt. We must have enormous storage facilities where we can keep ready for instant use large quantities, not only of food, fuel, clothing and ammunition, but also every conceivable item which goes aboard a modern ship or plane.



Nor does the list of Navy shore establishments end there. Radio communication is the nervous system of the modern Navy. The Navy maintains a vast network of stations for communication between our shore establishments, the Department, and our ships at sea. Then there are research laboratories, testing plants, the Naval Observatory, even a coffee roasting plant. And recently, under the impulse of our expansion project, the Navy has had another job assigned to it—housing—seeing to it that the workers who flock to centers of Naval activity have a decent place to live.

It has been inevitable that our bases and other shore establishments should be tremendously expanded as we feverishly increase the

size of our Navy. The fiscal year 1942 broke all records in the amount of public works which were constructed for the Navy. They included every conceivable variety of facilities, from the construction and repair of ships to the housing and maintenance of personnel and shore bases.

Shipbuilding ways have been built at a large number of yards. Two hundred cranes of all sizes were installed. Our drydock program was doubled. Roads, telephone systems, sewers were built at new centers of shore activity. Barracks were erected. Fuel depots, ammunition warehouses, radio stations, aviation fields, sea plane runways, hangars—all these had to be built at bases under conditions which varied from the frozen rock plains of Northern Iceland to the thick jungles of tropical posts.

These facilities were added to those which the Navy already possessed, expanding an already tremendous network of facilities ranging from Northern Iceland to the South Seas. It takes over 500,000 civilians alone to man this huge plant, in addition to many thousands of Navy personnel.

The increased emphasis on mechanized warfare and the rising star of aerial forces have imposed additional tasks on the Navy shore establishments. The technical advances in shipbuilding and the rapid development in the design of aircraft have made it necessary to revise and in some cases drop old methods in order to keep pace with the results of scientific research. It is not too much to say that one familiar with the activities and character of work performed in Navy Yards and Naval stations twenty-five years ago would be completely at a loss were he to witness the machines, methods, materials and techniques in use at this time.

This tremendous expansion all took place before the war broke out. It can well be imagined that since then we have been increasing our facilities at an even faster rate. We are spending many, many billions of dollars on this, already the finest shore plant possessed by any navy in the world. As our Navy expands its operations into many distant waters, new problems will arise in the construction of shore facilities overseas. We have, however, already had excellent training in meeting these problems while building bases at those points which we received from Great Britain.

Unquestionably, there will be many difficult problems. We face them with confidence, knowing that their solution will be a major factor in the victory to come.

Modernization of the Army

by

Hon. John J. McCloy

Assistant Secretary of War

WE have heard much of the modernization of armies. We have sought to make our army modern, but I am not certain that many realize all of the implications of such a process. Certainly I can claim no such knowledge of the subject as to justify my writing on it in a periodical read by professionals.

It is many months since the editors of this journal requested me to write on this subject. Indeed, so much time has passed since then that the excuse of press of work has worn pretty thin. My only excuse is that of the soldier who, being charged with prolonged leaning on his shovel, declared that he was thinking hard. My thoughts on the subject are not new and certainly are not profound, yet I hold them with considerable conviction.

Superficially, modernization implies new weapons; planes, highly developed automatic weapons, tanks, motor vehicles. Much could be written describing these new weapons provided for our Army, and it could be most interesting, but, however good such a description, it would be a most incomplete picture of the modernization of an army. With an abundance of these weapons, our Army may still be outdated. An army, in short, is as modern as its thought. With all our new weapons and increased fire power and mobility, our Army can be antediluvian if it seeks with these weapons to apply tactics that do not reflect the new capacities, or if it attaches the new forces to old plans conceived long before the war started and which do not reflect the new extent and method of war.

To determine whether we have a modern army we should not compare ourselves with what we were in 1917-18, as we so frequently do, but with the successful armies of today. The German Army introduced tactics for which the French and British, and, one must admit, we, were totally unprepared. Not one of these armies was modern at the beginning of this war in the sense that it knew how to cope with or itself deliver the type of attack the Germans had perfected.

The modernizing process really starts with the knowledge of what the new weapons can do and how their combined power can be integrated. To date our modernization has mainly taken the form of supplying certain weapons to the troops and training them in their individual use and characteristics. Much study and thought has also been given to their organizational employment, but as yet there are of necessity, I venture to say, relatively few battalions in the Army which are both fully equipped with all these weapons and are fully trained in their integrated use.

The writer happens to have been an artilleryman in the last war and the self-satisfying thought was often accepted by him, as, no doubt, it has been by many other artillerymen, of how superior from a technical and scientific point of view he was to the infantryman. The infantry battalion is generally considered to be a relatively simple form of tactical unit, yet today the variety and fire power of the weapons of even an infantry company are staggering. An infantry battalion commander and any of his officers must



know how to employ the guns, howitzers and vehicles of the cannon company, the anti-tank guns, the 60 mm mortars, the 81 mm mortars, hand and rifle grenades of varying types, semi-automatic rifles and carbines, light machine guns, heavy machine guns, Tommy guns and bayonet. He must also know the proper use of engineer troops, for the pioneer unit with its demolition and road-blocking equipment is a most important element in the strength the battalion can deliver. An infantry commander's job would seem today to be much more varied and technical than that of a corresponding artillery officer. Besides these weapons which come under his direct charge, the battalion commander, and when one says battalion commander that really means every officer in the battalion, must know the tactical employment of smoke, gas and airplanes, in

the sense that he must have complete knowledge of how they can be employed to harass or assist him.

It has taken so long to acquire the weapons, so long merely to teach men how to operate them, that the most important element of instruction, the effective employment of what we have, has had to wait. The new and varied tactical possibilities which the weapons present have to be absorbed throughout the Army and they probably will not be fully realized until some time after our troops have been in sustained combat.

There has been so much thought directed to the employment of planes and tanks that the modern aspects of infantry tactics are generally overlooked. Comparisons are odious anywhere, and become even hazardous in the armed forces, but I feel from my observations of the training of the army that the job of an infantry commander under modern conditions is, if anything, more complex than that of any other in the Ground or Air Forces. There is quite as much room for original thought in the development of modern infantry tactics as is the case with other units. In fact, such a commander, considering the variety of weapons he has to employ and the mission he has to perform, is more truly a "general" officer than the artillery, the tank, or the air officer. The popular concept that if we have good modern tanks and airplanes, the infantry will somehow rock along on the old lines, is false. Unless the infantry training keeps pace with the full capacity of its weapons and its supporting forces, the cornerstone of an up to date army is lacking.

It was not until the last war was far advanced that officers, including the professionals, appreciated the new uses to which artillery, then a very old weapon, could be applied. If not the greatest, at least one of the chief advances of the last war lay in the employment of this arm. Increased suppleness of fire, made effective through varying types of guns, shells, and fuses, better communications and firing methods, came in then, and they exerted strong influence on the effectiveness and the method of infantry employment. Few officers, however, in either the artillery or the infantry, previously had had the actual experience to inspire these developments. It was only after thoughtful men who knew something of what their guns could do had continuously lived, studied, and communed with the infantry, that real integration of infantry and artillery power was achieved.

Today it seems reasonable to assume that
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Expanding the Naval Air Force

by

Hon. Artemus L. Gates

Assistant Secretary of the Navy for Air

THE outstanding lesson of the present war, repeatedly demonstrated in every theater from the Arctic to the Tropics, and in every type of military operation, whether by land or by sea, has been the paramount importance of establishing air superiority.

During the twenty-five years between the first World War and the present one, the United States Navy did not have a large air force, but it did pioneer many of the really effective uses of air power—including dive bombers and aircraft carriers. Its planes have always ranked with the best in the world and, in spite of the handicap of carrier-based planes due to problems of take-off and landing on the short and narrow deck of a ship, our naval planes have scored outstanding successes against Japanese land-based airplanes in the Pacific.

Thus, although efforts to improve our airplanes must certainly continue, the immediate problem today is not simply one of designing superior, new airplanes and of learning how to use them, but the building up of a sufficiently large force, so that the superior quality of the United States Naval Air Arm can be most effective.

It is common knowledge today, both to ourselves and to the enemy, that our goal this year is 60,000 planes, of which a large number are for naval use. While detailed delivery figures can not be revealed, some idea of our expanded production program can be gained from the fact that deliveries of combat airplanes to the Navy in February of this



year were virtually equal to the total number delivered during the entire year of 1940. Along with the expanded output of airplanes, we are actively engaged in increasing the number of our aircraft carriers, including those being converted from merchant vessels.

Of course, the man-power required for this new tremendously expanded program will be immense. Plans now have been formulated to induct 30,000 picked students per year for pilot training. At four huge induction centers, each utilizing a considerable portion of the total facilities of such well-known universities as Iowa State, Georgia, Saint Mary's (California) and North Carolina, the new pilots will receive three months of rigorous physical training, during which emphasis will be placed on stamina and the ability to withstand the gruelling punishment of modern full-scale warfare.

At our great flying schools these men will then be brought to the pitch of polished aviation performance required for active duty with our expanding carrier aircraft squadrons and patrol wings. Every fundamental requirement of successful, hard-hitting naval aviators will be thoroughly and competently imparted to these men until, by their own efforts, they are ready to take their places in the most highly developed and best-trained naval air force in existence.

It must be realized that a program of such magnitude can not be completed quickly or easily. The training of a modern pilot alone takes almost twelve months and aircraft carriers are among the most complicated and difficult to build of all combat vessels.

We are, however, making real progress toward our goal which, with the full and unselfish cooperation of all concerned, we are sure to reach.

The General Board of the Navy

by

Admiral A. J. Hepburn, U. S. N. Ret.

Chairman, General Board of the Navy

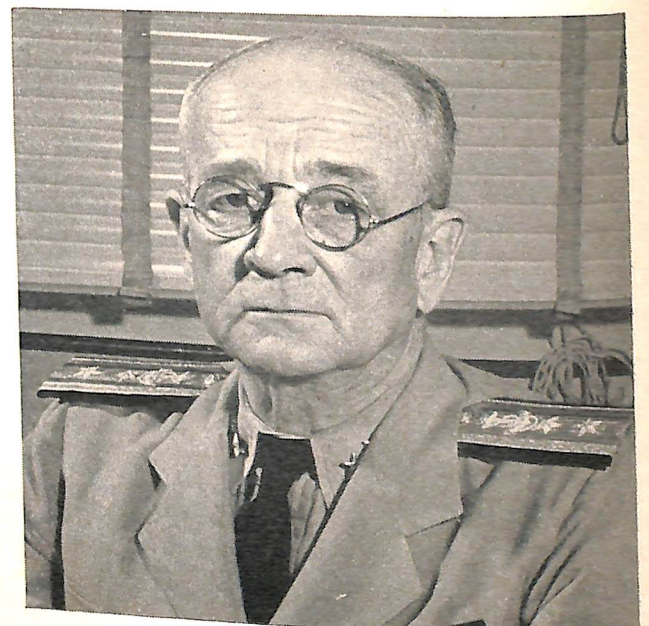
THE General Board of the Navy, as such, dates from March 13, 1900, when it was established by Navy Department General Order No. 544 issued by Hon. John D. Long, then Secretary of the Navy.

Prior to the war with Spain, there had been no advisory body in the Navy. With the approach of hostilities in 1898, the Secretary felt the need of a body to advise him on naval matters and, in the spring of that year, formed the Naval War Board of 1898, the forerunner of the General Board. This was a

purely informal group. All of its members had other duties in the Navy Department and "were asked" to act in an advisory capacity to the Secretary. At the close of the war with Spain, the "War Board" went out of existence.

The Naval War Board of 1898, during its brief existence, had served its purpose so well that, when it ceased to exist, the need for a permanent advisory body to the Secretary of the Navy was immediately felt. This manifest

(Continued on page 162)



Wartime Activities of the Department of State

by

Hon. G. Howland Shaw

Assistant Secretary of State

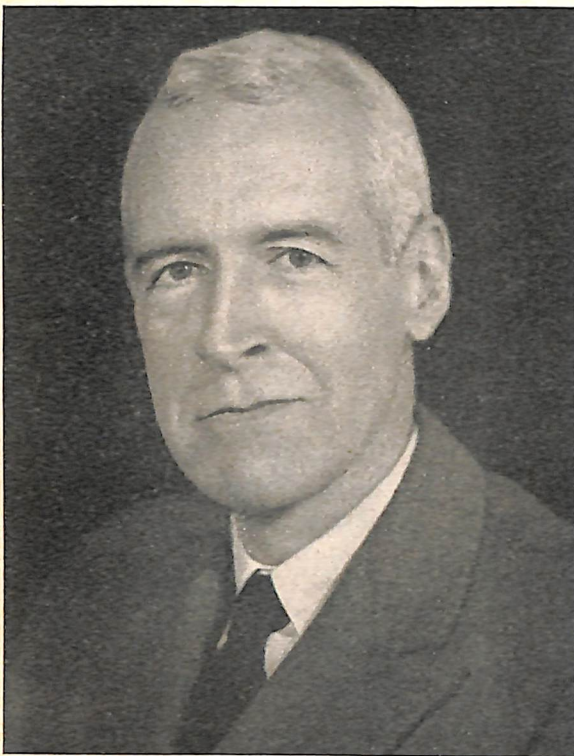
FROM the offices in its building alongside the White House and the several other buildings in Washington in which some of its divisions are now housed, the Department of State maintains contact with every Government agency in Washington the duties of which involve aspects of foreign relations; it advises those agencies on matters of fact and of policy; it aids them in carrying out their foreign activities through channels established by the Foreign Service; it conducts negotiations on political, military, commercial, and humanitarian problems with the diplomatic emissaries of foreign countries who are stationed at Washington and (through the Foreign Service) with the authorities of foreign governments; and it performs other duties imposed upon it by law or international usage. The manifold aspects of this work, in their historical development and current status, have engaged the attention not only of outstanding scholars but also of journalists and professional writers.

A superficial student of government might assume that in time of war the work of the Department of State would be considerably diminished. In actuality, the Department's work since December 7, 1941 has *increased* to such an extent that the personnel now numbers more than twice what it was a few years ago. Nevertheless the Department is still small; not counting the Foreign Service, its staff consists of fewer than 3,000 persons, including permanent officers and employees and those on war-service appointments.

Among the wartime functions of the Department of State are collaboration with the War and Navy Departments and other war agencies of the Government in the mapping of broad strategies; the determination of questions relating to lend-lease policy; the negotiation of mutual-aid agreements with our allies; the initiation of measures for the acquisition of critical materials of foreign origin; the appraisal, in the light of accumulated knowledge, of the considerations in favor of and opposed to the export of American materials to certain countries; the conduct of discussions with enemy governments through neutral channels regarding prisoners of war and related subjects; the planning and administration of devices for economic throttling of the enemy; and the study of conditions and developments in all countries with a view to promoting an eventual world settlement that will abide and stand firm through the political seasons of the future.

The Foreign Service of the United States includes (1) ambassadors, ministers, and other diplomatic representatives accredited to approximately fifty foreign governments, and (2) consular officers of the rank of consul general, consul, vice consul, or consular agent

stationed in approximately 250 seaports, commercial centers, and other strategic cities throughout the world. Since September, 1939, the United States has established diplomatic missions in such places as Iceland and Saudi Arabia and has opened new consular offices at Godthaab in Greenland, Dakar and Brazzaville in Africa, Vladivostok in Siberia, and elsewhere, in order to observe developments in those places and represent American interests there. Officers of the Foreign Service have been on the job in the "hot spots" of the



world, and some of them are still prisoners in the Philippines.

Military and naval attachés on the staffs of American embassies and legations, in addition to reporting directly to the War and Navy Departments on matters of interest to those branches of the Government, have rendered invaluable service to the heads of the diplomatic missions on numerous occasions. The Military Attaché section and the Naval Attaché section of an American diplomatic mission are functionally integrated units of the mission and contribute to the effective representation of the United States abroad.

At the head of the Department of State in Washington is Secretary of State Cordell Hull, who is responsible to the President for the Department's conduct of our foreign relations. He has held the office since March 4, 1933. Under Secretary of State Sumner Welles is next in rank. He was promoted from the position of Assistant Secretary of State in 1937. There are four Assistant Secretaries of State and a Legal Adviser, all of

whom are charged with weighty responsibilities in their special fields.

The Department's organization has undergone extensive changes in recent years, designed to increase the efficiency with which the Department may deal with the problems that it must solve. An Assistant and five Special Assistants are among the immediate aides of the Secretary of State. There are four advisers on Political Relations and an Adviser on International Economic Affairs, who are comparatively free of administrative worries and are able to devote their energies exclusively to the problems of foreign policy. The one-year-old Board of Economic Operations (not to be confused with the Board of Economic Warfare, of which Vice President Wallace is the head) includes a number of high officers of the Department.

The Divisions of the American Republics and of European, Near Eastern, and Far Eastern Affairs are the four "geographic" divisions, which initiate and review policy proposals concerning their respective regions, conduct conversations with foreign diplomats, and issue vital instructions to the Foreign Service. Some thirty-odd other divisions and offices such as the Treaty Division, the Division of Cultural Relations, the Passport Division, etc., perform essential duties that relate directly to one phase or another, or to all phases, of our foreign policy; much of this work is ancillary to the formulation of policies, but at times it involves decisions on matters of the highest importance.

The Department of State of the United States is thus primarily the Foreign Office of the American Government, but in four of its functions it has the characteristics of a "Home Office." First, the Department is charged with the custody of the seal of the United States and with impressing that emblem upon proclamations and certain other documents which bear the signature of the President. Secondly, the Department publishes the laws of the United States, at first in "slip law" form and later in the volumes of the United States Statutes at Large. The third "domestic" function of the Department is the so-called "ascertainment of electors" of President of the United States, a part of the Constitutional procedure of electing the President. Lastly, the Department is the medium of contact with the forty-eight States in connection with the ratification of amendments to the Constitution.

In the ways that have been described and in other ways the Department of State plays its part in preserving our cherished inheritance of a democratic policy and in preparing for the day when the task of winning the war will be replaced by the task of building a peace that will ensure the four freedoms for all men everywhere.

The Glory of Unconquerable Russia

by

Admiral William H. Standley, U. S. N.-Ret.

United States Ambassador to Russia

FOR the second time in the last twelve months I have returned from the Soviet Union with a deep feeling of admiration in my heart for the great Russian people. In the fall of 1941 I was a member of the Beaverbrook-Harriman Supply Mission sent to Moscow at the request of the President for the purpose of facilitating and expediting the supply of materials of war to the valiant Russian armies. From June 22, 1941, when the Germans invaded the Soviet Union, up to the time of the departure from the United States of our Mission it was generally thought in military and civilian circles that the Russian armies would not be able to stand up much longer against the Nazi invaders and that if not during the fall of 1941, surely by the following Spring, Russia would to all intents and purposes have been conquered by the hordes of Hitler. We were in the Soviet Union but five days, yet this time was long enough to induce me to state upon my return that "it was my opinion that the Russians would fight on to the bitter end no matter what the sacrifice." That was a year ago, and events have justified my faith in the Russian nation, for that country not only held out practically alone against the powerful invading forces of Germany and its satellite states, but fought furiously through the summer and fall and now appears to be taking the offensive. Upon my recent return after six months as American Ambassador in Moscow I am still convinced that Russia will continue to fight this winter, next spring, and continually until every foot of Soviet soil is cleansed of the Hitler invaders, until Europe has been liberated from the tyranny of Hitler, and freed from the threat of Nazi aggression.

The question people most frequently ask me now is: "What is the secret of Russia's strength of resistance?" or "Why were so many of our experts wrong when they predicted that the powerful German Army would sweep over Russia like an avalanche?" In reply no one answer can be given. There are, of course, those of a purely military character—the strength, endurance, and proved efficiency of the Russian military machine, the "defense in depth battle tactics" which the Soviet High Command has so successfully employed against the Germans, and the geographic considerations which made these tactics possible. But in my opinion there is perhaps more to the Russian tenacity and power of resistance than the efficient functioning of the Red Army. The self-sacrificing devotion of every man, woman and youth in the Soviet Union to their Army and to the cause for which it fights impressed me during

my stay in Russia more than anything else as one of the main reasons for the success of our Soviet Ally. There is complete unity of war effort in Russia today and a common determination to see this war through to victory. This in my mind is the guiding spirit and driving power that is motivating the entire country—the Government, the military and the people behind the lines. Everything is being sent to the front lines. The production of consumers goods has been replaced by front-line production, shops are practically



empty, and food is severely rationed. Yet the spirit and morale of the Russian people is magnificent and their stubborn fortitude, their unified determination to carry on to victory and freedom in spite of sacrifices and privations which we in this country might well find insupportable have impressed me as immortal attributes of a truly great people. The Russian nation in defending its way of life against those who seek to destroy it is fighting as one man, and it is just this unified effort and self-sacrificing devotion that has won my everlasting admiration.

This unity of effort should be a shining example not only to our own country but also to all the nations united today against the forces of aggression and tyranny. Those nations have now entered into a military partnership, and they are progressively fighting as one integrated team. When victory is ours, we must strive to transform these ties

which we have forged in battle into even closer unity of effort and cooperation in peace and in the great task of peaceful reconstruction that will be before us. I feel confident that we are on the threshold of that postwar period of collaboration in the fullest spirit of the word. The Anglo-Soviet Treaty and the Soviet-American Agreement of last June are firm foundations for the development of such collaboration. These agreements were signed in battle and are being strengthened by the ever increasing deliveries of war materials to our great Russian Ally. They will contribute, as Mr. Stalin recently pointed out, to the "progressive rapprochement between the members of the Anglo-Soviet-American coalition and their uniting into a single fighting alliance," and I am confident that Mr. Stalin will agree that when victory is won it will be our duty to transform this fighting alliance into a concordat dedicated to the improvement of peaceful international relations and the betterment of the commonwealth. I am sure that our statesmen and diplomatists, to whom will be assigned this task, will live up to the great responsibility that will lie before them and will make sure that that complete unity of effort generated in war will continue in peace and will be the spirit of the postwar era.

The European Situation

by JOSEPH STALIN

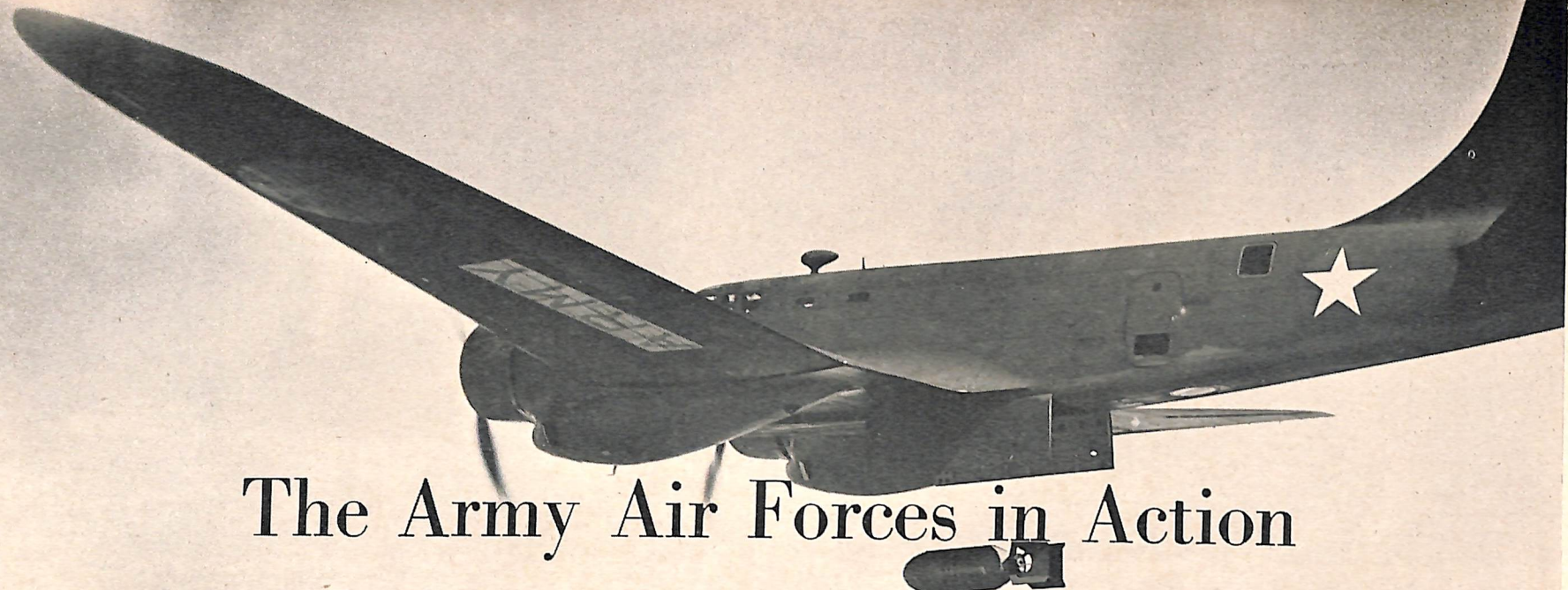
(from an address made to the Moscow Soviet November 6, 1942)

"One of the characteristic features of the present moment is the progressively growing isolation of the Italo-Germany coalition and the depletion of its moral and political reserves in Europe, its growing weakness and disintegration.

"The effects of the program of action of the Anglo-Soviet-American coalition has been that all the occupied countries in Europe are in full sympathy with the members of this coalition and are prepared to render them all the help of which they are capable.

"In this connection, another characteristic feature of the present moment is that the moral and political reserves of this coalition are growing from day to day in Europe, and this coalition is progressively winning millions of sympathizers ready to join the fight against Hitlerism tyranny.

"If the relative strength of these coalitions is examined from the standpoint of human and material resources, one can not help reaching the conclusion that the Anglo-Soviet-American coalition has the indisputable advantage."



The Army Air Forces in Action

by

Lieutenant General H. H. Arnold

Commanding General, Army Air Forces

THE Army Air Forces have a pledge to make to all the men in all the armed forces of America.

That pledge is, that from henceforward on, Americans will strive for the vital advantage of Air Supremacy, at every time and place of action against the enemy. And when attained, it will be as overwhelming an Air Supremacy as we can make it, an inevitable prelude to complete and permanent Victory in every corner of the earth. Everything that brings us closer to this one goal will be done, with as much ingenuity, gallantry, and intensive striving as Americans can bring to the fulfillment of such a goal. Everything else will be ruthlessly discarded.

Already, I am glad to say, we have made tremendous strides in the accomplishment of that objective, as the events of recent weeks have proved. For example, the great recent sea victories, at the Coral Sea, and at Midway Island, have proved without doubt how American land-based bombers can hit with crushing blows. American Air Superiority can and will go hand in hand with American land and sea Superiority until the last remnant of the Japanese naval forces is wiped off the surface of the seas.

Equally significant, however, is the fact that our air power has made it possible for our fighting forces to have the huge asset of Air Superiority on land as well, in every area where large numbers of American troops have landed overseas. In Australia, our hard-fighting airmen have established definite mastery over their enemies, and with this mastery there has come, if not an end to the Japanese threat to that southern continent, a complete halt to the once seemingly irresistible march of the Japanese hordes. There is little doubt that the enemy's war machine has been stalled for the present.

But it is not alone the presence of powerful American air units, in Australia, India, and Europe, for example, that has put a permanent dislocation in the timetable of our enemies. An even greater deterrent is the certainty that our nation is now engaged in building up the mightiest aerial armada the world has ever seen, an aerial armada that will continue to grow in relentless fury while it is at the same time destroying not only the

air forces of the enemy, but also his ability to produce more.

Let us contrast this outlook with the situation that prevailed at the time of Pearl Harbor. At that time our forces, especially our Air Forces, were spread dangerously thin all over the globe. It was no question of whether or not we could have aerial superiority at any one place. It was simply a grim mathematical proposition whereby our small number of available air units were divided by areas where they *had* to be. Step by step, we were forced to give up areas, because it was impossible to get the air reinforcements there in sufficient numbers and soon enough to provide any real help to our embattled troops. The immutable factors of time and space were a much greater cause of our original setbacks than anything which the Japanese were able to do.

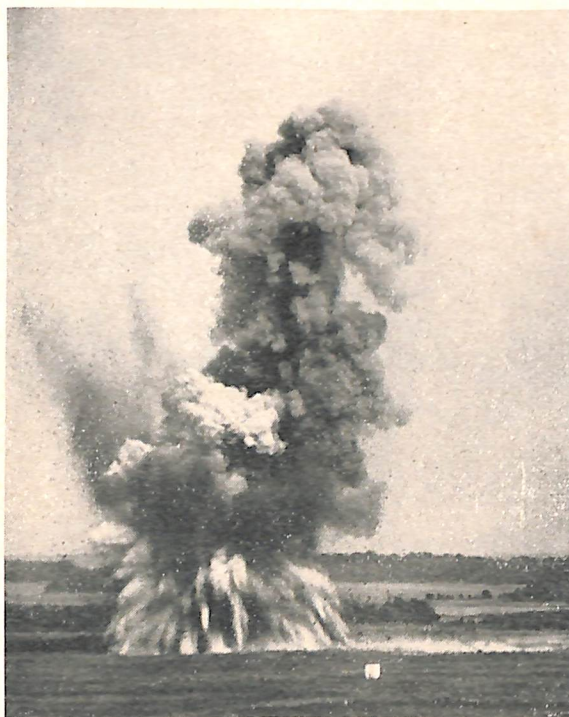
Despite the enormous handicaps and numerical inferiority with which our flyers were faced, however, they have been giving a magnificent account of themselves, in every encounter with the enemy. They have provided proof, if such proof had been necessary, that American airmen, and American airplanes, are second to none. Space does not permit the



enumeration of the brilliant feats which they have accomplished, over the vast reaches of the Pacific, over the Philippines and Java and Australia, and elsewhere that they have thundered through the skies. The "impossible" raid conducted by General James Doolittle against Japan, the famous "picnic" from Australia to the Philippines and back, the extraordinary combat achievements of men like Captain Colin Kelly, Major Hewett Wheless, Lt. Col. George E. Schaetzel, Capt. Alvin L. H. Mueller, jr., and Captain James Byington McAfee, and literally dozens of others, all point to the fact that our gallant air fighters are determined to gain the supremacy of the air, no matter what the odds. And from now on, the odds are going to be in our favor.

The most hopeful sign of all, however, is the fact that our airmen who have returned to this country after action in the battle zone are absolutely convinced that Victory in the air is simply a matter of time. Well aware from experience how our bombers, like the Boeing B-17 "Flying Fortresses," the "B-24's," and the "B-25's" are the nearest approach to a completely impregnable means of waging aerial warfare, our flyers have stated, time and again, that these splendid airplanes

(Continued on page 165)



The United States Marine Corps

by

Lieutenant General Thomas Holcomb

The Commandant, United States Marine Corps

THE Marine Corps is larger than at any time in its long history. On 7 Dec. 1941, the Corps boasted approximately 4,000 officers and 62,000 enlisted men on active duty. Today there are about 10,000 officers on active duty and the enlisted personnel has been doubled. Actual figures may not be revealed.

The rapid expansion following the attack on Pearl Harbor, Wake, Guam and Midway has forced the Marine Corps into the most comprehensive program any small unit of service was ever called upon to absorb. This expansion has not been made at the sacrifice of efficiency or training. Every recruit has been furnished sufficient uniforms, adequate shelter, and, above all, competent instruction under officers and non-commissioned officers who know the Marine way of life.

It is true that recruiting divisions and districts have been given enlistment quotas. It is also true that there are waiting lists at many recruiting stations. However, we will continue to enlist more and more men. The two big recruit depots — at Parris Island, S. C., and San Diego, Calif.—have been expanded and additional barracks and range facilities added since December.

The Marine Barracks at New River, N. C., is rapidly nearing completion. Many of its facilities are now in use by members of the corps.

On the West Coast at Camp Pendleton, a huge new training area has been established on the Rancho Santa Margarita y Los Flores in northern San Diego County. Office buildings and other structures are to be built there to take care of the \$20,000,000 cantonment which eventually will house more than 20,000 Marines.

On both coasts the men of the Marine Corps are undergoing extensive training in amphibious and woods warfare. The daily schedules at New River on the Eastern coast and San Diego on the Western keep pace with the Marine tempo of getting things done today so that tomorrow they may become automatic under conditions of war.

The Marine Barracks at Quantico, Va., hum with the stepped up intensity of super training as the Marine Corps Schools turn out well-trained junior officers in monthly increments of two to three hundred. The two officers schools, the Candidates' Class and the Reserve Officers' Class have been streamlined into courses of ten weeks' duration as against the former 13 weeks' training. College graduates and selected non-commissioned officers are eligible to undergo the intensive

training for second lieutenants' commissions. More men are needed, however, for officer training. Graduates of these two schools are now on duty throughout the Marine world, in the continental United States, on island bases and aboard ships of the fleet at sea.



Emphasis is also upon the enlisted personnel. At the Training Center at New River men are being schooled in all the specialist branches of the service. Motor transport, water distillation, engineering, aerial photography, armorer and numerous other experts in military pursuits are graduated after an intensive course. Each company or battalion in the Corps today either has obtained or is

obtaining men trained as gas NCO's, snipers, rubber boat repairmen and other specialists.

Today's ever-expanding and streamlined Marine Corps places the emphasis upon specialists. Men are being taken from the ranks of civilians and being commissioned or given enlisted ratings as engineers, radio air raid warning experts, trained journalists or as other specialists. Every effort is being made to place qualified men in positions where they are most valuable due to experience or special aptitude.

The Marine Corps has extended its expansion program to its balloon barrage units, parachute troop organizations, glider detachments, to tank and amphibious tractor battalions and to all the other special units that make up a complete fighting force today.

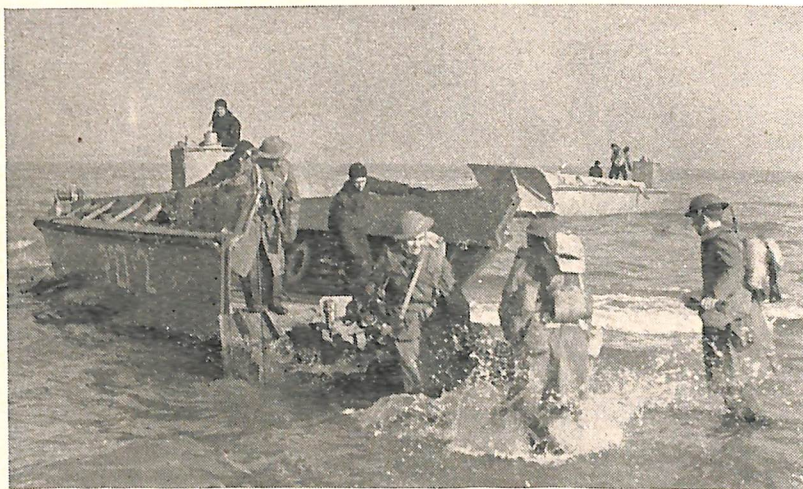
An ever increasing number of naval aviators are entering the Corps as Marine officer pilots. Many non-commissioned officers are completing flight training. Our air wings, each commanded by a general officer in the Marine Corps, are today at their highest peak both in efficiency and in numerical strength of officers, men and equipment. Marine planes and pilots gave a good account of themselves at Wake, Midway, and the Solomons, and today are helping on ocean patrol.

The assault on the Solomon Islands is proof that the Marine Corps is ready and eager to meet our country's foes. This attack, incidentally, was the first offensive by American land forces against the enemy.

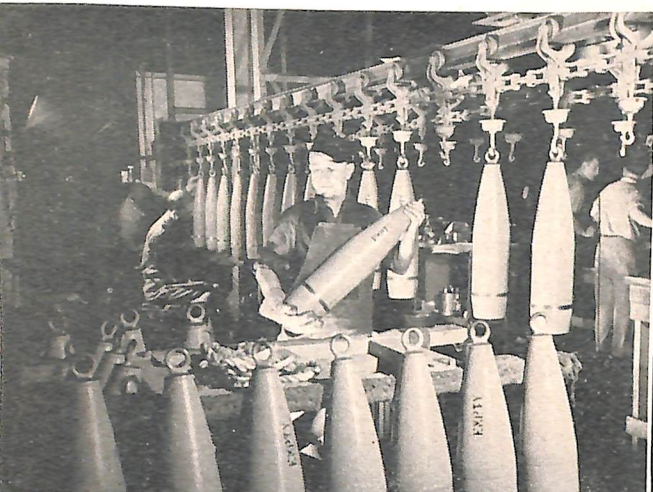
What the Fourth Marines did from Cavite to Bataan to Corregidor is history. They took a heavy toll of opposing Japanese troops. We had our own losses, but when the complete story is told, the courage and fighting power of the Marines under Col. "Sam" Howard will perhaps some day rank with the deeds of Maj. "Jimmy" Devereux's infantry battalion and the pilots and ground crew of Maj. Paul Putnam's Wake Island Air Marines.

The Marines have seen their dead. They will not forget. The tremendous expansion program of today is the Corps' memorial to these men who died against tremendous odds with an empty shell in their rifle chamber and wielding a bayonet.

We make no boast; we detract credit from no one. When the Commander-in-Chief tells his Marines to take "that" Jap-held island or to land on "that" German-occupied shore, the Marines will do it. They will push ashore and pave the way for the hordes of American liberating troops that follow in the wake of America's Amphibian warriors.



Marine Corps detachment unloading a light anti-tank gun by hand from a ramp boat during maneuvers near Ft. Story, Va.



OWI Photo by Palmer

Unloading completed 155-mm. shell bodies from a drying conveyor at a converted midwest auto plant.



OWI Photo by Palmer

Red hot parts for a big Navy gun being drop-forged in a Navy arsenal.



OWI Photo by Ann Rosener

Final touch-up of airplane motors in a large midwest airplane plant.

Production for Victory

by

Donald M. Nelson

Chairman, War Production Board

I AM glad for the opportunity to discuss the policies of the War Production Board, and some of the problems it faces, in these pages. I think of the WPB's basic policy as a realistic policy to soberly and deliberately carry out the job of utilizing all the tangible, physical, productive capacities of the country in the war effort.

Germany began in 1933 to build up a tremendous war machine. Under the guidance of her brilliant military strategists, she produced an air force and a ground force of hitherto undreamed-of proportions. Against future needs she accumulated tremendous stockpiles of materials to expand and operate her military machine when the going got rough. Add to Germany's military production program the offensive, belligerent spirit implanted in her people and the tactics of warfare her military genius originated and developed—all this while the democracies were asleep—and you don't have to look further for the reasons of Germany's military success. Japan and Italy planned and prepared for this war like Germany did.

We started our production program late and we started slow. In the last months we have been speeding to catch up, and we have done well. We caught up with the enemy's *rate* of production some months ago, and at present the United States alone is out-producing all of Axis Europe by a wide margin.

That is a fact, but only the foolish and unrealistic will be made unduly optimistic by it. So far, in spite of our really enormous production, the amount of materiel we have delivered to the fighting fronts is only a beginning. There have been enormous, world-wide demands for the shooting equipment we have produced and until the war is won, those demands will continue and actually increase as new fronts are opened.

If we are to keep on expanding for war, we

must make sure that no materiel, no physical asset, is wasted or left idle. We must trim our lives and habits to fit a war economy. The needs of the war program—the need for overwhelming quantities of shooting equipment—must force this country to cut civilian pro-



duction and civilian activity to the bone.

Before this war is over and before we can lay aside our weapons and return to the ways of peace, we shall need to use in some way for essential purposes all the management ability we have, all the manpower we have and all the materials we have.

What does that mean?

It means a nation of men and women working solely for victory in this war. It means

the full use of the best skills of every citizen. It means the complete dedication of management and labor. It means the best use of all raw and manufactured materials and of every bit of valuable scrap. And it means that no labor, no factories, no machinery can be laid aside on the shelf and frozen into a non-productive state.

Nothing in this nation that is useful and can be put to work within a war economy can be allowed to simply lie idle until the war ends, even if it means breaking up for scrap of machinery that has no place in a war economy and cannot be used for strictly essential production.

The job of the War Production Board is to take every step necessary to bring the full, brutal weight and power of American production against our enemies. It is our job to succeed, regardless of sacrifices and adjustments. War imposes harsh terms on a country that had not built for war.

I don't believe for one moment that we have any reason to fear the consequences of the drastic changes that we are now forced to make in our economy. I firmly believe that we will solve the post-war problems of conversion to peace with the same resourcefulness that we are putting into the fighting of this war. If we exercise the proper forethought now, we can preserve the opportunity to re-establish, in peacetime, our free enterprise system, even though we must put temporary restrictions on it in time of war. There will be a great challenge to Americans when the fighting is done. A challenge to build and develop a world of decency and justice and plenty for all men. The horizons of the future will be truly boundless.

But until that day comes, we will go resolutely ahead with what we have started. We will look neither to the right nor to the left. We will keep our eyes fixed on the one goal ahead of us—the winning of this war.

The United States Coast Guard in the War

by

Vice Admiral Russell R. Waesche

Commandant, United States Coast Guard

WITH the progress of the present war, the organization of the Coast Guard and its duties and responsibilities have undergone a number of changes. The most important change occurred just prior to the opening of hostilities when the President by executive order transferred jurisdiction over the Service from the Secretary of the Treasury to the Secretary of the Navy. Another significant change took place on March 1, 1942, when many of the functions of the Bureau of Marine Inspection and Navigation of the Department of Commerce were transferred to the Coast Guard in order that they might be consolidated and coordinated with the aids to navigation, lifesaving, port security and other related functions already being administered by the Service. Since 1939 there has been a tenfold increase in personnel and hundreds of floating units have been added to the fleet.

In view of the vital role of the merchant marine in the war effort, many of the more important wartime responsibilities of the Coast Guard relate to safety at sea and the protection of ships carrying war supplies to the armies of the United Nations all over the world.

In the administration of its newly acquired maritime functions, the Service now supervises the construction of merchant ships; inspects them for seaworthiness and compliance with the requirements of law regarding safety equipment; issues licenses and certificates, to officers, pilots, and seamen; supervises the shipment and discharge of seamen and protects their rights; investigates casualties and accidents involving merchant ships; and generally enforces the laws and regula-



tions relating to water-borne commerce.

Under legislation which has been on the books since the last war but which remained practically dormant until the German invasion of Poland, the Coast Guard is devoting much of its effort to the security of our ports.

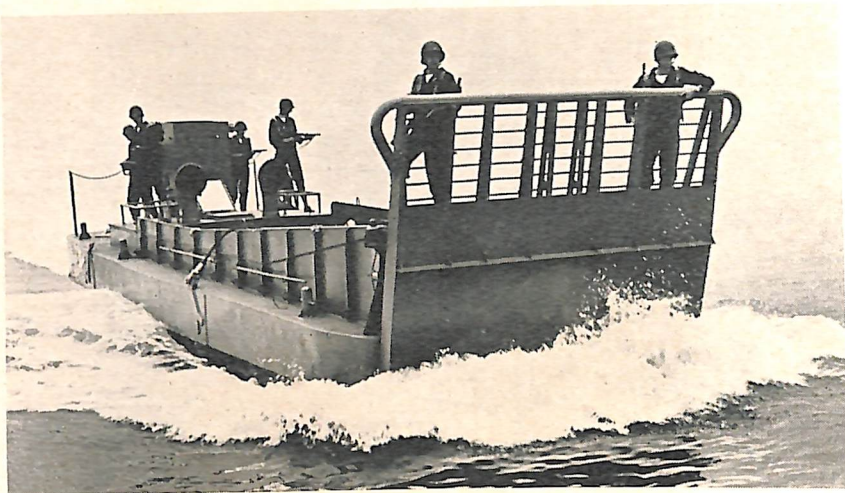
This work has to do with the protection against damage by fire, explosions, and acts of sabotage of the ships and terminal facilities in American harbors. It involves the guarding and patrolling of piers, wharves, docks, and other waterfront structures, the control of the anchorage and movement of vessels, the regulation of the stowage and handling of explosives and other dangerous cargo and the control of access to harbor facilities and ships in port. To a large extent this function is being performed by reserve personnel and small boats acquired for the duration of the war.

To prevent enemy submarines from making contact with the American coast and to insure that prompt aid is given to merchant ships attacked by submarines near our shores, the Service maintains a patrol of the beaches along the Atlantic, Pacific and Gulf coasts.

The war has not caused serious interruption of the Coast Guard's service to vessels in distress and it continues to maintain the aids to navigation so necessary to the safety of maritime commerce.

While the war has resulted in the placing of increased emphasis on the merchant marine duties of the Coast Guard, there has been no diminution of its military activities. On the contrary such activities have increased materially. The larger cutters of the Service have become part of the Navy fleet and are doing ocean convoy work. Many of the smaller cutters and boats are being used in coastwise convoying and for submarine patrol duty. Coast Guard airmen are also convoying coastwise ships and maintaining an off-shore

(Continued on page 161)

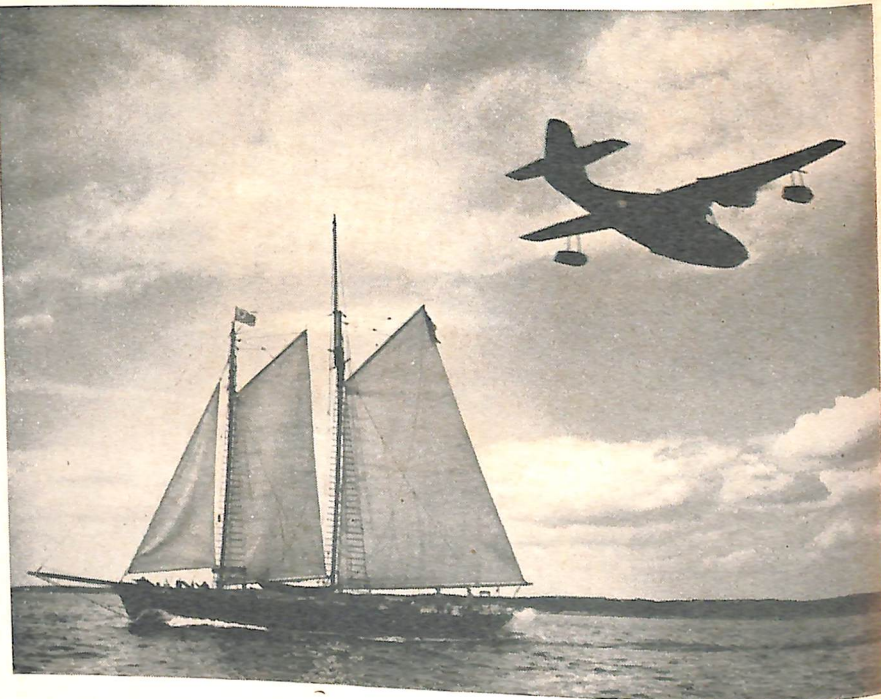
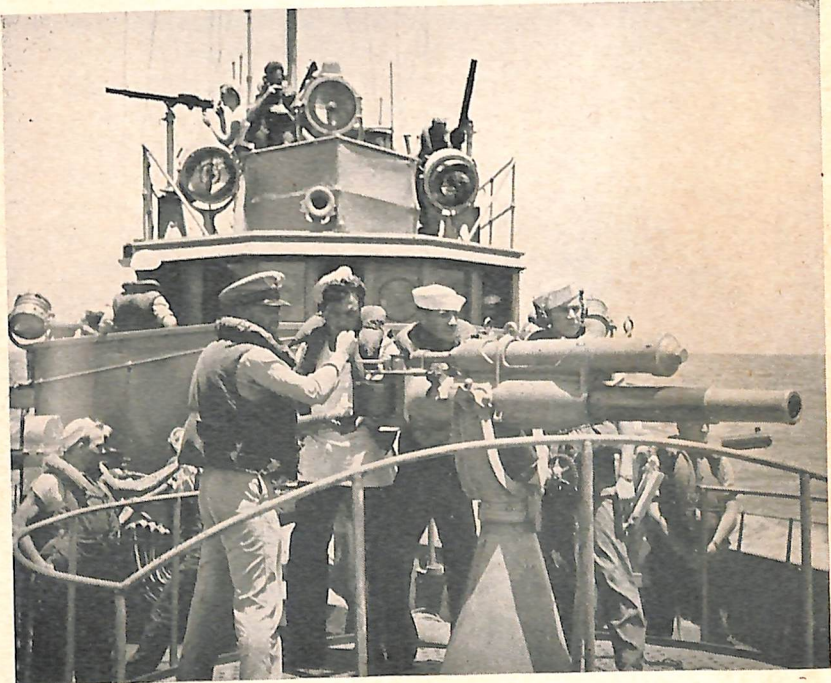


U. S. Coast Guard Photos

It was barges such as these, operated by Coast Guardsmen, which worked with the Marines in the operations in the Solomon Islands.

Alert Coast Guardsmen man their battle stations as they escort a convoy on the North Atlantic Patrol. Fast Coast Guard Cutters protect the convoy from enemy submarines.

Wooden ships and men with wings—Coast Guard schooners and Coast Guard patrol planes work together on anti-submarine patrol.



The Netherlands Navy Fights On

by
Professor Dr. P. S. Gerbrandy
Prime Minister of the Netherlands

WHILE in the South Pacific night has now fallen over the Dutch East Indies, and while in Europe the first glimmers are appearing of the dawn that surely follows night, the people of the Netherlands Kingdom all over the world remind themselves that they have to do one thing only: to hold on and to fight back.

It was for that reason that, at the very moment when the treacherous Japanese were overrunning Java, Sumatra and all the other treasure Isles of the East Indies, I was able, on behalf of the Netherlands Government, to give the assurance that at that very moment our work and our fight were being continued on new lines, under the guidance of our revered Queen Wilhelmina, who knows better than any, what it means to "maintain."

The greater part of our Fleet had perished gloriously in a naval campaign that will live forever in naval tradition. But within a matter of days the Fleet was being reorganized; plans were already on foot to obtain new fighting vessels, plans which will steadily come to fruition.

The indomitable campaign of our people in the Netherlands Kingdom, whether it be in the Nazi-oppressed Holland or the Japan-oppressed East Indies, has given us the hope and the strength to carry on, thinking not only of peace but of the liberation of our country which will precede the true peace.

Many times during the past two years, since Germany invaded Holland, I have been asked two questions. The first is, "Why did Holland have a Navy?" and the second is, "What has been Holland's strategy?"

The first question may be answered thus: To a nation with a long seaboard with a vast Empire stretching to the very ends of the earth and consequently with extensive commercial sea routes, a Navy is naturally a necessity. This does not mean that such a Navy is to be regarded as a threat against other Powers, for to Holland as to the United States or Britain, a Navy is always likely to be a weapon of defense rather than offense. Indeed, the Navies of all the Democracies might well be described as the greatest instrument in existence for the preservation of peace.

Since the Dutch naval wars with the British in the seventeenth century the function of the Royal Netherlands Navy has been essentially that of protecting the sea-routes that lead to and from the distant parts of the Kingdom. But since the Motherland was invaded in 1940, the Navy has certainly revealed that the Dutch are still worthy seamen, still courageous sailors, still daring defenders of the great traditions of the past.

The gallant destroyer *Van Galen* fighting to the last gun in Holland; the intrepid de-

stroyer *Isaac Sweers* dealing out its hurricane of death blows in the Mediterranean; the dauntless Dutch submarines striking relentlessly at the Axis in the Seven Seas; all these were typical pages out of Dutch Naval



history leading up to that most glorious drama of them all when Admiral Karel Doorman, facing almost incredible odds, ran up his signal, "I am going to attack. Follow me." The lustre of such deeds as these will glitter forever over the waters where so many brave Netherland and Indonesian sailors have lost their lives.

The part played by the Dutch Navy in the great Allied sea campaign is as yet a very incomplete tale. But when the story is told in full, it will give a very definite brilliant answer to that query, "Why did Holland have a Navy?"

Coming to the second question, that of naval strategy, the answer is a little more intricate.

In the first place once the Netherlands were faced with war it was clear that their strategy, as far as their own territories were concerned, could only be the same as that of their great Allies, which has been a long-term strategy. In the Pacific region there had been some preparation to adapt the Dutch forces to the new demands, which had not been the case in Europe. But even that preparation was far too brief.

The strategy of the Netherlands Kingdom at war has been to offer to the Allied cause all that it possesses. There has been no niggardliness about this; it has been an out-and-out cooperation, unstinting and without thought of the sacrifices involved. But all along there has certainly been the recognition that the Dutch Navy would be kept at the

greatest possible strength with the assistance of the United States and Britain. Our naval material is being reorganized; our Fleet will continue to operate—in fact is already operating—against the common enemy, wherever he can be found. And especially, knowledge of actual conditions in the great East Indies Archipelago with its thousands of islands will make it possible in the not distant future for units of the Dutch Fleet to operate there once more to great advantage, forming part of the Allied Fleet.

But in addition to this long-term strategy, there is the more apparent strategy of tactics. It is yet too early to attempt to analyze or to assess the matter in which the three or four outstanding sea-battles of the Pacific were fought. Full reports are not yet available, whilst the gallant Admiral most intimately concerned now sleeps with so many of his gallant sailors beneath those tropic waters washing Java's shores. Nevertheless, it is clear from preliminary reports that the strategy of the Netherlands Navy in the East Indies conformed to Dutch tradition and teaching.

From the days of De Ruyter and Tromp, those great founders of our Navy and our traditions, the main principle of our tactics has been attacking the enemy at his weakest point. In modern warfare this is not quite as easy as in the olden days; as was shown in the Java Sea battle. Future Naval historians will undoubtedly discuss at great length whether it might or might not have been advisable to endeavour to cut the Japanese lines of communication before the naval tentacles reached the larger islands of Borneo and Celebes. But there will be no

(Continued on page 171)



Army Air Forces Photo
Dutch fliers train in U. S.—Eagerly looking at U. S. ships flying over a training school in the Southeast Army Air Forces Training Center, these Netherlands East Indies Dutch resume their flight training under more peaceful skies after being evacuated from their homeland to Australia and thence to America.

Norway's Part in the World Strife

by

Jörgen Galbe

Chargé d'Affaires ad interim, Royal Norwegian Embassy, Washington, D. C.

"IF there is anyone who still wonders why this war is being fought," said President Roosevelt in September, 1942, "let him look to Norway. If there is anyone who has any delusions that this war could have been averted, let him look to Norway. And if there is anyone who doubts of the democratic will to win, again I say, let him look to Norway."

The President voiced this tribute while presenting an American built sub-chaser to the Royal Norwegian Navy under terms of the lend-lease agreement between the United States and Norway. Recalling the treachery and brutality of the German attack on Norway in April, 1940, President Roosevelt continued:

"But the story of Norway since the conquest shows that while a free democracy may be slow to realize its danger, it can be heroic when aroused. At home, the Norwegian people have silently resisted the invader's will with grim endurance. Abroad, Norwegian ships and Norwegian men have rallied to the cause of the United Nations. And their assistance to that cause has been out of all proportion to their small numbers."

In 1940 Norway had a population of about three million people scattered over a total area of about 125,000 square miles. In population it was one of the smallest nations in Europe, yet it boasted the fourth largest merchant marine in the world, one which still is surpassed only by those of Great Britain, the United States and Japan. More than 80 per cent of the Norwegian merchant fleet was outside Norwegian territorial waters when the Germans struck on April 9, 1940, and all of these ships, with the more than 25,000 seamen manning them, immediately placed themselves at the disposition of the Allies in the war against the Axis Powers.

The services of this merchant fleet at once became of vital importance to the Allies, and particularly to Great Britain during those crucial months when that nation was standing off the enemy virtually single-handed. Norwegian tankers were bringing to England fully half of her oil and gasoline supply, and Norwegian freighters were delivering one-third of her foodstuffs. In December, 1940, Ronald Cross, British Minister of Shipping, declared the services of the Norwegian merchant fleet were of "decisive importance." A little later it was stated authoritatively in England that "the Norwegian merchant fleet is worth more to us than a million men."

Since that time Norwegian ships

and seamen have by no means relaxed in their war effort. This has not been accomplished without sacrifice. Since April, 1940, more than 300 Norwegian ships have been destroyed by enemy action, and about 2,000 Norwegian seamen have perished. But the Nor-



wegian merchant fleet sails on, bringing men, foodstuffs and vital materiel to all parts of the world where United Nations forces are fighting or preparing to fight.

These all-out services of her combined merchant fleet constitute Norway's chief contri-

bution to the war being waged against the Axis Powers from abroad. But they are not Norway's only contribution. To speed a United Nations' victory she also offers the services of sea, air and land fighting forces.

The German invasion interrupted the program of enlarging and modernizing the Royal Norwegian Air Force but did not end it. Barely had the Germans completed their conquest of Norway when the Air Force set up a new training center at Toronto, Canada. To this camp, called "Little Norway," have come hundreds of young men, most of whom have escaped from occupied Norway at the risk of their lives. Ground crews as well as pilots and plane crews are trained there, and "Little Norway" graduates compose the all-Norwegian squadrons now in active service in England and Iceland. Other "Little Norway" graduates are flying with the R.A.F. Still others are engaged in ferrying American-built bombers across the seas. In England, Norwegian fighter pilots have become famed for their skill and daring. In the Dieppe raid they accounted for 15 per cent of the destroyed German planes.

The Royal Norwegian Navy was never large, and what there was of it was almost entirely wiped out in resisting the German attack. A few ships, however, managed to get to England and there formed the nucleus for a new navy which is already larger, both in ships and personnel, than that which coped with the Germans in 1940. Today the Royal Norwegian Navy's operations extend to all the seven seas. It has bases in such far-off places as South Africa, Australia and in the Caribbean. Chiefly, however, it is devoted to

convoying ships across the North Atlantic and to patrol duties in the North Sea. The ships of the modern Norwegian Navy are, for the most part, small and fast, and they serve mainly as weapons against enemy submarines.

At camps in England and Scotland the Royal Norwegian Army prepares for the day when accounts are to be squared up, once and for all, with the Germans. It is still a small army, but it is vigorous, determined and well-trained. Its officers and men have been thoroughly schooled in invasion tactics, and many of them have already been given opportunities to test their skill as participants in Allied Commando raids.

Norway's air force, navy and army are under the unified command of General Wilhelm Hansteen whose headquarters are in the London. (Continued on page 169)



One of the flyers in training at Camp Little Norway in Toronto displays his mascot to General W. Steffens, head of the Norwegian Ministry of Defence in Canada. General Steffens went to Canada shortly after the invasion to help set up the Norwegian training center.

Canadian War Information Photo

Australia in the War

by

J. B. Brigden

Financial Counsellor, Australian Legation

AUSTRALIAN participation in the war has naturally followed the lines of British action from the date of the declaration against Germany in September 1939, and its first troops for service abroad were in fact sent to England, where they formed part of the Army held against the threatened German invasion after Dunkirk. Soon afterward, however, they joined with increasing numbers sent direct from Australia to Egypt. Those Australian forces were conspicuous in the first advances across the Libyan desert, and until the greater part were returned home early this year for service under MacArthur, they were important elements in every campaign around the Mediterranean. Those who remained have participated in the victory of the British Eighth Army. A separate force met with misfortune in Malaya, but the tide of Japanese advance on Australia itself was destroyed in the mountain jungles of New Guinea.

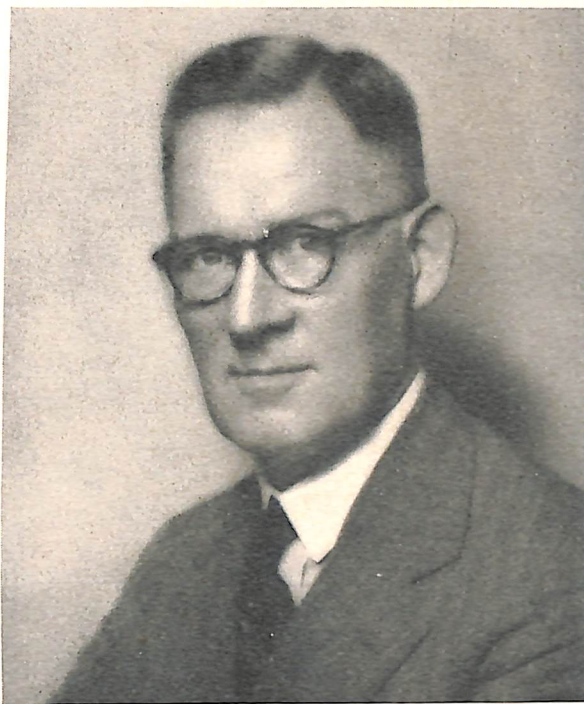
The small but effective Australian Navy, which became an integral part of the British Navy on the outbreak of war, was also active in the Mediterranean during the earlier campaigns as well as in the oceans nearer to its home. Three of its fine cruisers have been lost since then, one in the Indian Ocean, one in the battle of Java, and one in the Coral Sea.

The Royal Australian Air Force, which on the British model is a separate Service, has also been prominent throughout three years of war, both in direct connection with other Australian forces and as a supplier of personnel to R.A.F. units wherever the R.A.F. has flown. Australian airmen for service with the R.A.F. are as a rule trained partly in Canada, under the comprehensive Empire Air Training Scheme, first planned in 1939. From Australia itself the R.A.A.F. has been busy with the U. S. Army Air Force.

The resources of a young industrial community of 7 million people have of course been inadequate to supply and maintain its armed forces in their numerous fields with all the arms and equipment required in this war, but a surprising variety of service stores has been furnished from Australia to a common pool in each area. Starting with food, Australia soon became a main source of provisioning for all British forces in Eastern areas. Woollen clothing of all kinds followed, with blankets, boots, and numerous other items of that kind. Camp and fortification material and equipment, radio and other signal gear, and field engineer stores were needed in vast quantities for the Middle East, and

Australia was soon supplying all such classes of stores to the limit of its capacity.

Early in 1941, when the Lend Lease programme was developing in the United States to meet the needs of Britain, the increasing demands of the Eastern areas were only less



urgent. A British Eastern Group Supply Council was set up in India with the object of making that area as self-supporting as possible. It was found that Australia was the most hopeful field for further supplies of all kinds. Demands increased from North to South Africa, from New Zealand and the Pacific Islands, from the Netherlands Indies and of course from the East generally. Australia set about the more severe rationing of its

civil usage of materials and of manufacturing capacity, scores of small firms were taught to make machines and then tools, other previously imported equipment was copied or improvised, and many small towns became branches of munitions factories. Not everything could be contrived and it was hard even in those days to get critical items out of the United States to complete some essential plant or to maintain a vital programme.

When the Japanese blow struck in the East, Australian losses had already been heavy, and the catastrophes of Malaya and of the Archipelago came as severe shocks. Its own seasoned fighting forces were abroad. Its stores, arms, ammunition, and even the products of its small aircraft industry had been poured out to the distant fronts. It was therefore a great tonic to the Australian people when fully equipped United States forces began to arrive, when General Douglas MacArthur arrived also, and was given supreme command over the appropriate area, and again when American naval and air forces intercepted with such notable effect the southward drive of the new enemy.

For Australia these episodes in the long ordeal of the war have created an entirely new situation, and although the task at the moment may be sterner than ever, the future is bright with its new associations across the Pacific Ocean. The two armed forces work together as naturally as they speak the same language, with only such piquant differences in manners as are found in the different native idioms of that language. Australian shortages are being made good, not by replacing the same things as Australia had sent abroad, but as far as they can be spared by more urgently needed aircraft, and by munitions components for a still greater intensity of war production.

Australia is regarding its new situation as one of preparation with the United States for a massive offensive from its shores, and its manpower and resources are being re-aligned and replanned accordingly. Foods are being grown and processed to suit the particular needs of the United States forces. Large additional bases for sea, air, and ground forces have been completed. All of these works, services, and supplies come under the heading of "Mutual Aid," which began from Australia with food for Bataan. Their scope and volume will continue to increase until the flood tide of the democracies overwhelms the menace to their lives and freedom.



United States Army troops landing in Australia. As to other bases, nurses accompany the troops.

India's War Effort

by

Sir Girja Shankar Bajpai,

Agent-General for India in the United States

THE United States of America entered the second World War in December 1941. The moral energy, technical skill and material resources of this great country are now dedicated to the winning of this war. Already her Army is reported to have passed the 4½ million mark. Her production of armaments—for aeroplanes alone, the President set the staggering figure of 60,000 planes for 1942 and 100,000 for 1943—is likely to be unprecedented, not only in her own history but in the history of the world. Her war expenditure is already to be measured in astronomical figures. This gigantic effort entitles her to ask what the other United Nations, associated with her in this struggle for freedom, are doing to achieve victory.

India is one of the United Nations. Though only two-thirds the size of the United States, she has three times the population. Her resources in raw materials, whether in the vegetable or mineral kingdom, are known to be great. She ranks eighth amongst the world's leading industrial countries. She has been in the war since the British Commonwealth of Nations took up, in Sept. 1939, Germany's challenge to dominate Europe and the World. By virtue of her central strategic position in the middle of the Indian Ocean, India constitutes a vital source of supplies and reinforcements for both the Middle and the Far East. Since the loss of Burma she has become the sole base from or across which China may receive much needed aid in essential supplies. From Assam, the province that constitutes her northeastern border, and from her eastern seaboard, the Allied offensive that will drive Japan out of Burma and, ultimately, of southeast Asia must be launched.

INDIA PLAYS HER PART

How has India played her part as a source of material supplies and fighting man-power? To what extent has she been prepared for the offensive against Japan?

Though India is eighth amongst the world's



great industrial countries, her manufacturing strength is mainly in textiles and leather goods. When the war broke out, her annual production of steel was only three-quarters of a million tons; she was not organized for the production of heavy equipment such as tanks or aeroplanes, both weapons, as experience has proved, essential to the successful prosecution of mobile modern war. A comprehensive programme for modernizing her Army had been worked out in the beginning of 1939. But this was only a few months before the war with Germany began and its implementation was seriously handicapped in consequence.

Neither Great Britain nor France was prepared industrially to meet the full weight of German armaments. All their production and what the United States, then neutral, could furnish barely sufficed for the needs of the Allied forces on the western European front. After the defeat of France in June, 1940, all available supplies, from whatever source obtainable, had to be diverted to the defence of Great Britain, then in deadly peril of a German invasion, and of Egypt which was threatened by a formidable Italian army. Equipment of the peace-time Indian army, as also of the new forces that might be raised, thus became a slow business. The same causes operated to restrict the flow to India of machinery with which she could expand her own output of military equipment.

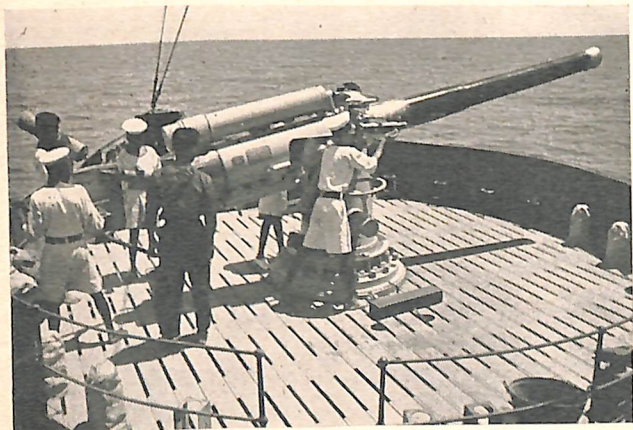
India's war effort has to be viewed against this background of limitation of essential supplies, a limitation which still operates because of the heavy responsibilities that the German invasion of Russia in the summer of

1941, and Japan's entry into the war last December, have thrown upon the productive capacity of the United States and the United Kingdom. Supplies of finished equipment still have naturally to be earmarked for the fighting forces in those areas where enemy pressure is the greatest. Productive plants and essential raw materials also cannot be easily diverted from the U. S. A. or the U. K., since they are urgently needed to maintain and even increase output in these two countries. Finally, there is a shortage of shipping.

WAR PRODUCTION

Nevertheless, India's output of steel has already been increased by 500,000 tons to 11¼ million tons a year. Her output of rifles is 6 times the pre-war figure, of machine guns 8 times, of small arms and ammunition 4 times, of gun ammunition 24 times, of guns and carriages 9 times. Bullet-proof armour plate of a new composition is being successfully manufactured in large quantities. The manufacture of armoured vehicles has greatly increased; the chassis are obtained from Canada and the United States and are assembled in India by Indian workmen, while the bodies are completely manufactured in India. One of the manufacturers is producing over 500 bodies a week. A large number and variety of mechanical engineering stores are also being manufactured. Considerable strides have been made in the production of electrical equipment. India's strength in the production of textiles has been fully utilized. The output of clothing for the Army is now over 10 million garments a month. Tents for the Commonwealth forces engaged in Africa and the Middle East come mostly, if not entirely, from India. The combined total output for the requirements of the fighting forces in

(Continued on page 173)



Men of Royal Indian Navy with a breech-loading gun aboard a minesweeper of the R.I.N.



A railway workshop "somewhere in India" turns to the production of shells and hand grenades. The worker is cleaning and lime washing the bore of a shell case.

South Africa and the War

by
Saleg

(*"Saleg" is the code name for the Legation of the Union of South Africa, Washington, D. C.*)

THE Union of South Africa is in this war and is playing a notable part in it. This has not been so widely appreciated by her friends overseas as South Africa would like it to be; but when the war is over and the whole pattern of its vast moves and confusing cross-currents can be seen objectively one of its most engrossing studies will be the war in Africa and the manner in which the small white community south of the Limpopo, the Union's northern border, made its influence and its leadership felt throughout the Continent.

South Africa declared war against Germany less than two days after Britain did so and began to apply itself at once to the task of raising an army and gearing its industries to war-time production. An immediate task was to institute an unceasing watch over the Cape sea lanes—the Southern ocean highway between the West and the East. On June 10th, 1940, when Italy entered the war, the Union had a striking force in readiness in Northern Kenya, several thousand miles beyond her own Northern border, and since that date the South Africans have been almost continuously in action, first in East Africa and later in the Middle East.

South Africa has put all her resources in manpower and material into this war, but her part has largely been played out of the limelight. Her efforts, great as they are in relation to her own limited resources, have been overshadowed by events in other theatres of war.

Though the Union figures largely on the map—its area is more than five times that of Great Britain—it is but a small portion of the African continent. And yet the two and a quarter million whites who occupy this Southern fragment of Africa are the largest settled white community on the whole of the African Continent which contains 4,000,000 whites and 150,000,000 non-Europeans, predominantly Negro races.

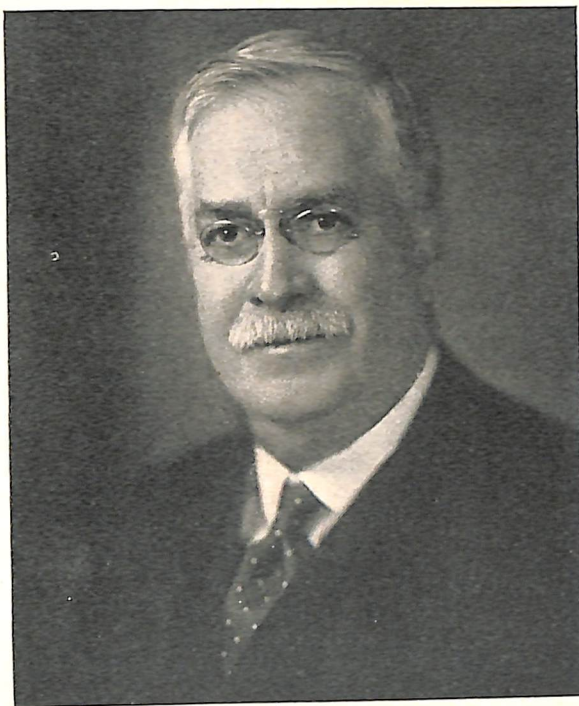
In the Union itself there are eight million non-Europeans or "Bantu" natives. For long-settled reasons of national policy the "Bantu" natives are not available for combatant purposes, but a remarkable contribution has been made by the non-European people both on the home industrial front and in non-combatant work in the Army.

But the task has fallen mainly on the shoulders of South Africa's small white community, and under the leadership of her great soldier-statesman, Jan Christiaan Smuts, South Africa has played a role in the African Continent in this war which may have far-reaching effects upon the future relationships of the Southern African States, already bound by strong ties of friendship.

Smuts is a Field Marshal, but it is his own wish that his friends continue to address him

as General, a title which in his case conveys a wealth of esteem that has endured for many years. When South Africans today speak of "the General" they do so with affection and admiration for one of the world's greatest living personalities whose voice is heard with respect far beyond his own country.

General Smuts has since the outbreak of war combined the offices of Prime Minister of the Union of South Africa and Commander-in-Chief of the South African Forces. On September 5th, 1939, he took over the reins of government from General Hertzog, whose policy of benevolent neutrality for South Africa in the event of a European war did not commend itself to the majority of the people. It rested with the Union Parliament—the Parliament of the country enjoying full sovereign independence within the framework of the British Commonwealth—to decide whether or not the Union should go to war. Parliament on a majority vote rejected neutrality and under General Smuts' leadership the country which was wholly unprepared and unequipped for war started to gird itself for the task which General Smuts saw looming ahead. The fact that South Africans did not unanimously support the declaration of war should, to be properly understood, be viewed against the background of the coun-



Harris & Ewing
His Excellency Ralph William Close, Minister of the Union of South Africa.

try's history and the composition of its white population.

Before the war broke out the ideal of a united South African nation of English and Afrikaans (Dutch) speaking people had been



S. A. Official Photo
The Prime Minister of the Union of South Africa, General J. C. Smuts, Capt. E. T. Dodson, and engineer officer, and Lt. Gen. Sir Pierre van Ryneveld, Chief of General Staff.

very nearly realized. Roughly sixty per cent of South Africa's white population are not of British descent but are mainly of Dutch (Netherlandish) and partly of French, Belgian, Scandinavian and even German descent, generally referred to as the Afrikaans-speaking section. To a very large part of this section the decision to enter the war was a decision not of the heart but of the head. For those who followed the leadership of General Smuts—himself of Dutch descent—it was a matter of cold logic that South Africa's own safety, no less than her loyalty to the concept of partnership which is the basis of the British Commonwealth, demanded her participation in the war. The decision was more readily made by the forty per cent of South Africans who are of British descent, but a fairly strong minority of south Africans are still isolationist in sentiment. It is against this background that the performance of South Africa must be judged—and it is a good performance, by any standards. South Africa's fighting forces are fully representative of both the Afrikaans- and the English-speaking sections in the Union. Some units are 95 per cent Afrikaans-speaking, others are mainly English-speaking, but the men in the field do not think of themselves as Afrikaans or English-speaking but as citizens united in a common task.

"There is," says General Smuts, "no blot on our sovereign independence. We acted as a free and honorable people. Dishonor and sovereignty do not go well together."

Parliament in deciding to sever relations with Germany also resolved that no troops should be sent overseas from South Africa as had been done in the Great War of 1914-1918. This at first caused some misapprehension overseas as to the part the Union was pre-

(Continued on page 175)

France at War

by

Jean Monnet

Member of the British Supply Council, Washington, D. C., Formerly, Chairman of the Anglo-French Coordinating Committee, London

FRANCE at War—1918, under the Arc de Triomphe those of the French soldiers who did not remain forever on the battlefield marching together with their British and American comrades; Pershing, Foch, Haig; flags flying; an immense hope filling the hearts of all when President Wilson drove down the Champs Elysees, the hope of a new, safe world, where families could be raised in peace, where the life of the village would not be disrupted every generation by the call of the "mobilisation generale." At last France's sons could be raised and live.

And then in 1940—the same Arc de Triomphe, the same Champs Elysees, the same clear atmosphere, the same trees; but marching down the beautiful avenue once more the barbaric hordes of the invaders. The dreams of 1918 have given place to desolation and despair. Hope—there is no more. England in danger; America so far away—where is salvation to come from, how will liberty and freedom be restored?

A weight of lead fell on France—doubt of themselves, anger against her allies, hatred of the invaders martyred the hearts of Frenchmen. For the third time in 70 years French soil has been ravaged, and sons of nearly all the families of France have been taken away. The life of the village is again to be tortured by the presence of the conquerors, and the sons still alive are now prisoners in Germany's own land.

For the third time France, the advance guard of the democracies, has had to stand up first against the German invasion. Whether of Bismark in 1870, of William II in 1914, or of Hitler in 1940, the armies were the same, the purpose was the same—domination, destruction of the principles of freedom on which Western civilization, European and American, has been built. To achieve these aims France had to be conquered, more than conquered—France must be destroyed. No possibility of enforcing German doctrines or muzzling liberty in Europe with France wounded but still alive. France must be humiliated forever, her belief in liberty and humanity killed in her soul. Her manhood must be kept in captivity to destroy the spirit and wreck the bodies. France must have no future. The German army of occupation must be the ruthless and subtle army of destruction.

France fell. She fell under the weight of an army at least double the size of her own—her

own depleted by the 1,600,000 dead Frenchmen left on the battlefields of the last war, and under the weight of a military preparation pursued ruthlessly during years by Germany, preparations never equalled before in the world.

Then one of the greatest tragedies of all time took place—France, that vanguard of Democracy, that champion of the universal rights of man, was enslaved. France was to be chained, the martyred sister of the free



peoples whom she had stood to defend. Cut off from the world, from her brothers in freedom, France had to be blockaded by those in whom rested her only hope.

The Germans established themselves in France. The line of demarkation cut France in two. Communication became impossible. The Germans occupied all the towns, many of the villages. Machine guns in the market square, patrols with heavy feet marching up and down main streets; officers, soldiers, forcing themselves into the homes of the people who had to continue to live in the same place—where else to go? Food requisitioned for the occupying armies, hostages shot at dawn, workers sent to Germany. The workers remaining in France forced to go to the factory to earn for their families the short rations enabling them barely to exist. The factory makes weapons for Germany—France works for Germany, against her own liberators!

But Bombers come from England; the workers applaud, sing the Marseillaise; the factory is crushed; workers die. The widows follow with fervour the funeral of the British pilots responsible for the death of their men. But the family must live—those who remain continue to work and to hope that more bombers will come.

France disarmed—her sons away in prisons in Germany—hatred and determination in her invincible heart, but powerless—she had to submit, and yet prepare for the day of liberation. Few voices are heard, the millions must remain silent—how can one be surprised then at all the contradictions that seem to have come from France?

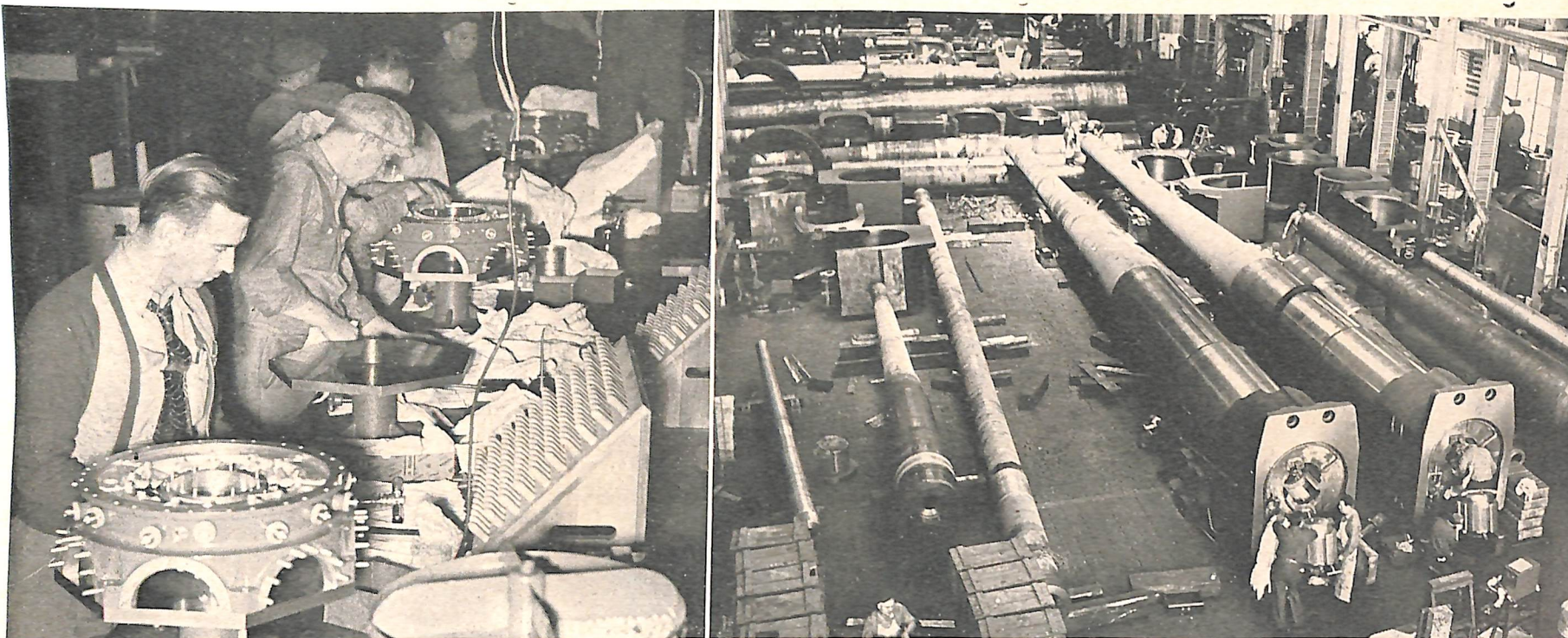
Gradually through this period of desolation the undying belief in liberty that fills the French people's hearts came to life again. The wonderful effort of England; the determination to resist, so heroically voiced by Winston Churchill, Russia, and at last the entrance of the United States into the war. And now 1942—the appeal of President Roosevelt to the French people—the liberation of North Africa by the American and British armies.

That liberation of France overseas has brought the occupation of the whole of France—there is not one village now in France that will not know the invaders—and the tragedy reaches its climax—France had to be lost, lost in her entirety, so that she could be saved.

The hardships are greater, the food is scarcer. French ports on the Mediterranean will suffer the tragic fate of the ports of the Channel. More allied bombs will fall on more parts of France. But French hearts now again believe in the future. Liberty will live again. Sons will come back; and who knows but that the life of the village may this time become peaceful for good.

The eyes of the French are now turned towards North Africa, awaiting the rise of a French army. They are awaiting the day when they will hear that French armies will at last have been able to take their part in the struggle that will liberate the people of France, together with those gallant French who went on fighting and never gave up. They are waiting and preparing for the day when the whole nation can join in the effort to finally crush the invader. They are awaiting the day when again the voice of France can speak of liberty, freedom, and bring once more its contribution to the building of a safer Europe, of a better world.

"Patriotic Frenchmen will know that our presence in North Africa is the promise of their freedom—whether they are in German prisons, on the slave gangs of the German factories, or in the vast concentration camp which the Germans has made of France. My former comrades-in-arms will believe me when I tell them that the Axis has met its Marne, and that if they listen closely they will hear the tramp of marching men who not so long from now will be swinging along the Champs-Elysses on their way past Chateau Thierry, St. Mihiel and Verdun to victory at Berlin. They will heed, I am certain, my invitation to form their battalions and join our ranks, so that the hills and the valleys of the Patrie which I know and love so well, will once more be free."—GENERAL JOHN J. PERSHING, *General of the Armies of the United States, in a letter to President Roosevelt, November 12, 1942.*



Production for the United States Army

by

Lieutenant General William S. Knudsen

Director of Production, War Department

TO give a picture of war production for the U. S. Army, I might do this in the simplest way by stating that I have, during the last nine months, visited over 500 plants in 120 cities in 31 states. I have inspected plants employing more than 700,000 men and women doing war work ranging from the manufacture of airplanes and tanks to fuzes and primer caps.

I have been impressed and much encouraged by the progress made to date. Facilities have been created or converted. Billions of dollars have been expended for factories, machine tools, and jigs and fixtures, but, best of all, American industry and labor have put their teeth into this job—the biggest ever undertaken by any nation, and we are on our way. True, we still have a long road ahead of us, but the flywheel has gotten started and is gaining momentum with every day that goes by.

We have a system in the United States different from that of our enemies. We have learned the trick in peace-time pursuits of producing things in quantities by splitting operations and making fixtures which can duplicate pieces rapidly and accurately. All the development of these methods and their application to munitions manufacture had to be started from the ground up, as but very few of our manufacturers had previous experience in munitions work. I am reminded of a shop which I saw on one of my trips which had previously manufactured conductor pipes and ash cans and was now turning out cartridge clips at the rate of millions per month on automatic dies, with furnaces and conveyor line assembly,—quite a step to

take, but doing it efficiently and well.

All over our land we have automobile builders making airplane motors and tanks—business machine companies making guns and directors—electrical equipment manufacturers making radios and instruments; all started



in a little better than a year. We have built explosive plants which outdistance the production of World War I, and before we finish we will out-manufacture the Axis nations by a comfortable margin.

In pushing our production ever upward, to meet the requirements, balance is essential.

We know, of course, that every day somewhere in the world some American friend is being killed fighting for you and me, and it is our supreme duty to see to it that he has the material to fight with, in order to keep the casualties at a minimum.

I have every confidence that our Army and Navy will do their job, and I have every confidence that every American manufacturer, engineer or workman will do his utmost to win the battle of production which must necessarily back up the battle in the field.

We have started thousands of shops doing work they never did before, but we are exciting their imagination. The good old American ingenuity is coming forward to find ways to do the work quicker and better. The War Department officials in the field are ever ready to assist and cooperate in eliminating delays. Under Secretary Patterson has done marvelous work in helping to unravel legal tangles and get quick decisions. The War Department procurement machine is functioning at high speed. Commitments are being made of a size that no one dreamed of a year ago.

The monthly expenditures for finished work are setting records month after month. Our President's program, thought fantastic at the start, is rounding into shape.

We are all part of this effort to win the war. Our combined efforts will show the enemy that free labor and free enterprise can lick any combination of slavery and fear. We have the resources; we have the men; and we have the will to win. This is your United States and my United States—united as never before.

Battle Order in the Offensive

by
Colonel I. N. Shishurin

Red Army, U.S.S.R.

WAR is a stern teacher. In wartime, old established forms and methods of tactics and strategy undergo their trials and Army Manuals and Regulations adopted in peacetime are put to test. In the case of the Red Army, these documents which prescribed various methods of activity of our troops in wartime have been, are, and will still be, of great value. However, certain points in Regulations are already out of date and since they do not answer modern conditions are in need of revision.

That applies particularly to sections dealing with battle formation in the offensive.

Practice has shown that the best battle order in such cases is that which permits the simultaneous bringing into play of the largest possible proportion of infantry and its firing weapons for direct action against the enemy in the selected direction of advance.

If from this standpoint we compare the battle order of the platoon, company, battalion, or regiment echeloned in depth and of the same units arranged in line, the advantages of the latter will become quite obvious.

When the battle order is arranged in a line composed of all platoons and companies with the exception of a small reserve, the entire battalion or regiment takes part in battle simultaneously. Thus, the commander of a given unit is in a position to bring all his own and supporting fire weapons to bear on his adversary. In the case of a unit echeloned in depth, on the other hand, a considerable part of its forces is doomed to inactivity: for example, one or two squads out of four in the case of a platoon; six to eight squads out of sixteen in the case of a company; five platoons out of nine in the case of a battalion, and nineteen squads out of twenty-seven in the case of a regiment. In other words, a unit echeloned in depth during offensive operations does not bring into play more than half its manpower and fire power.

The battle order in line has other advantages compared with the battle order echeloned in depth. It is less noticeable against the background, can more easily adapt itself to it and camouflage itself so that it is harder for the enemy to discover it and maintain aimed fire with his artillery, trench mortars and infantry weapons.

Furthermore, the unit arranged in two or more echelons, occupying as it does a square or rectangle of ground filled with men and firing weapons, presents a very favorable target for attack from the air and for zone fire, whereas the unit arranged in a line is far less vulnerable in this respect.

We may point to another advantage of the battle order arranged in line. It is as follows:

Ballistic properties of artillery and small arms are such that the zone of dispersion of missiles is less in height and width than in length, especially in short distances (less than 800 metres in case of small arms). For instance, when firing at a range of 100 metres, the zone of dispersion is 110 metres in length



U. S. Army Signal Corps Photo.

Officers of the Red Army on an inspection tour at Ft. Benning, Ga. Maj. Paul Barayev (with glasses) and Col. Paul F. Berezin, (USSR Aviation) inspecting a plane's wing. In the right background is Capt. Demetri Shimkin, USA.

and only 170 centimetres in height and width. This means that when an enemy machine gun is firing at a given point, only a few of the men in line are liable to be hit, and, if the gunner makes the slightest mistake in aim, they are not liable to be hit at all. When the unit is echeloned in depth, on the other hand, not only men in the first echelon, but also, those in the second echelon, who virtually are inactive on the battlefield, are liable to be hit.

Hence, formation in line insures not only maximum effect of manpower and firepower, but also, considerably reduces losses of advancing infantry.

Furthermore, in case of formation in line, it is easier and simpler to effect coordination within the unit itself and between the unit and supporting weapons. "Elbow contact" between men in squad, platoon, or company makes it possible to transmit orders, commands and reports along the line, consider-

ably facilitating the direction of battle.

Thus the battle order of squads, platoons, companies, battalions and regiments should, as a rule, be such as to permit maximum and simultaneous participation in battle of infantry and its fire weapons from the beginning to the end of an offensive operation. This being so, the commander's reserve assumes the highest importance. It is the duty of the reserve to parry enemy surprise attacks, especially against flanks and junction points; to support forces in action and to develop and consolidate their successes. The strength and composition of the reserve will depend on the task in hand, the plan of battle, and the nature of the ground occupied by the units in fighting formation.

As a rule, when advancing under normal conditions with protected flanks, the reserve may consist, in the case of a battalion, of a platoon of riflemen or automatic riflemen, platoon of anti-tank rifles, several heavy machine guns and 45 millimetre guns and, in the case of a regiment, of a rifle company, anti-tank guns, heavy machine guns, and 45 millimetre guns.

What is the best battle formation for infantry waging offensive operation? Squad and platoon should be deployed for battle in a line in which men are placed and advance at interval of six or eight paces from one another. The place of the squad commander is in the line itself and of the platoon commander behind his unit where he can most conveniently direct the battle, watch the enemy and keep his eye on flanks and neighbors.

In a rifle company, all platoons should be arranged in one echelon and, depending on conditions, either in a straight line or with forward (or backward) angle, while the place of the company commander, as of the platoon commander, should be behind his unit.

The battle order of the battalion should be arranged as follows: Either all three companies in a straight line or angle forward (or backward) or staggered to right (or left).

Battalions in battle order of the regiment should be arranged roughly as companies are arranged in the battalion.

Such a system of arrangement of battle order will, undoubtedly, strengthen forward lines and make it possible to strike simultaneously at the enemy with full strength of advancing forces. The rest depends on the commander, on how effectively he masters the principles of the new battle formations, and how skillfully he applies them on the battlefield.

Petroleum and the War Effort

by

Rear Admiral Harry A. Stuart, U. S. N.

Director of the Naval Petroleum Reserves

MODERN warfare on land, sea and in the air is largely dependent on petroleum products—munitions as essential to armed combat as ships, planes, guns and ammunition.

Products of petroleum, formerly required by our armed forces in relatively small quantities, in the main, as fuel for the navy and smaller amounts as lubricants, diesel engine oil and gasoline for trucks, staff cars and small boats, now is in demand to provide gasoline and fuel for engines of all types in volumes which only a few years ago would have seemed fantastic to those responsible for the fuel supplies of our army and navy.

The ordinary engine fuels and lubricants, heretofore the most important petroleum products, are no longer the only refinery fractions required in vast quantities in order to prosecute warfare.

The modern oil refinery, of necessity, is being converted into a chemical factory wherein the basic raw materials used are crude oil and natural gas, which contain natural hydrocarbons now the source of iso-octane, the premium fuel for combat planes and bombers, toluene, the basic substance for manufacture of trinitro-toluene, the TNT of high explosives, and butadiene and other basic stocks for the manufacture of synthetic rubbers.

Large volumes of methyl-alcohol can, it is claimed by some, be produced more cheaply from petroleum hydrocarbons than from grains or sugar refuse. All these are rapidly being recognized as important factors in the petroleum picture as we see it today.

There is still much research remaining to be done on the hydrocarbons contained in the many types of crude oils produced in the United States and the future probably will see developed special fuels and petroleum products in commercial amounts which, as yet, are only dimly conceived in the minds of a few of our foremost petroleum chemists.

The very abundance of petroleum in the oil fields of the United States has, of course, led to its profligate use, and little thought has yet been given to its conservation through salvaging for re-use even our extremely limited supplies of Pennsylvania grade paraffin base oils, perhaps the finest base stock for high grade lubricating oils and waxes available in the United States, and other products which can be reconditioned and re-used.

At the present time, with a domestic petroleum production approximating four mil-

lion barrels daily, the flow of petroleum from producers to consumers, private and military, will doubtless go on unchecked—due to the very momentum of the process which the pe-

and in the air that the problem of keeping all units supplied has developed into an important phase of modern warfare. Both land and sea borne petroleum products to the fighting fronts or to other points where they are necessary to the war effort, are subject to destruction at sea, by enemy submarines and bombers and on land by bombers and sabotage.

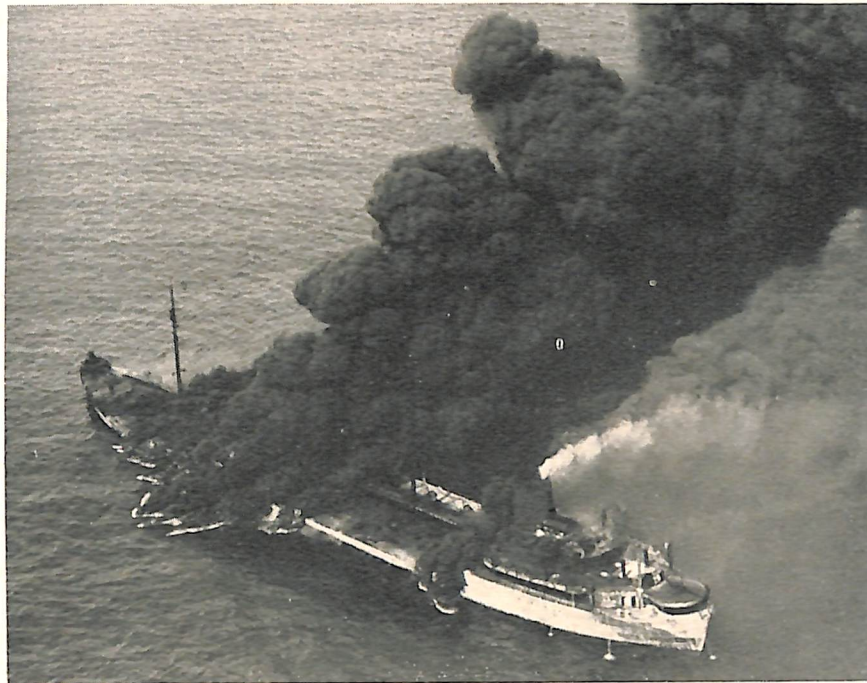
The principal difficulty facing the oil industry and those responsible for supplying the armed forces and essential civil and industrial needs in support of the war effort, comes from the fact that the areas of greatest demand at home and where oil and gasoline are required abroad are remote from sources of supply. The difficulties in supplying large eastern industrial areas, in the face of disruption of tanker transport from the Mexican Gulf Coast has imposed a heavy burden on our eastern railway system, which it is hoped will be lightened

by construction of necessary pipe lines before tank car rolling stock becomes too worn out to continue to carry the heavy transportation load it is now called upon to deliver.

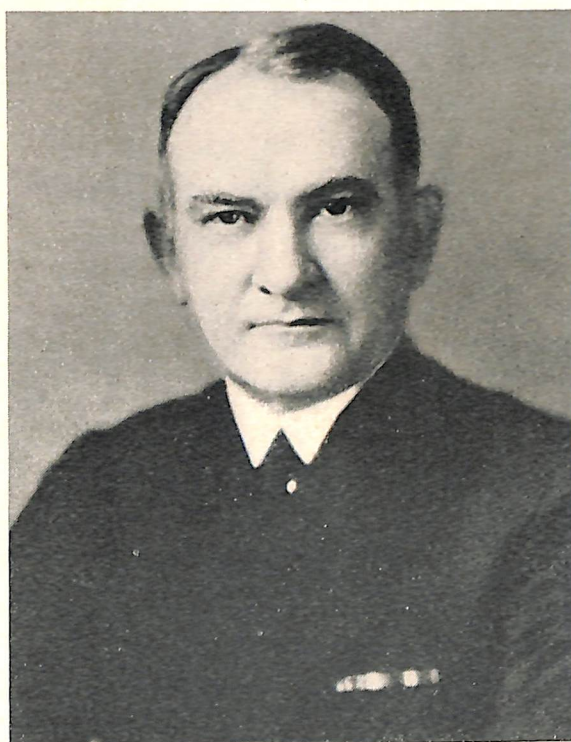
While at the present time the industry's main bottle-neck is transportation, there is also looming on the horizon, the threat of an actual shortage of supplies caused by the rapid decline of wildcat drilling and the failure to discover new fields containing sufficient oil to offset current production. This development has long been foreseen by most oil men and government personnel familiar with the over-all petroleum picture but there has seemed to be little that could be done in the face of the country's apparently enormous potential production from its developed and partly developed fields. Warnings that new discoveries at the rate of nearly one and a half billion barrels of oil each year could not long be sustained after all shallow fields had been tested to deepest horizons fell, for the most part, on deaf ears and although there appears to be a back-log of approximately twenty billion barrels of recoverable oil yet to be produced from known fields in the United States, it is my belief that these reserves, oil in sight, must of necessity be the main support of our war effort and little help can be expected from discoveries made during the war period.

In conclusion, we must give credit where due and must marvel at how our enemies in Europe have been able to do so much with their meager petroleum resources.

There seems to be but little doubt now,
(Continued on page 161)



U. S. Navy Photos
Thousands of barrels of the "black blood of war" went up in smoke as this United States tanker was torpedoed by an Axis submarine. In this instance, crew members brought the flames under control and the tanker was towed to port by a U. S. naval ship. It has since been repaired and is now back in service. Below: Rear Admiral Stuart, Director of the Naval Petroleum Reserves.



troleum industry has set up for handling this valuable natural resource.

In the war today, petroleum products are used in such large quantities on land and sea

American Labor in the War

by

H. A. Millis,

Chairman, National Labor Relations Board

IN the labor relations field, the United States entered this war under far more favorable circumstances than last time. In early 1917 the trade union movement included not more than three million workers. Labor in most of the key industries was unorganized, with no experience in collective bargaining. Serious differences of opinion existed within the labor movement as to our participation in the war. At the end of 1941, in contrast, organized labor counted over eleven million members. While the labor movement was divided and competing, with minor exceptions it was united on the war program.

During the war emergency of 1917-1918 agreement had first to be obtained on policies which in 1941 were matters of established law. Thus, the War Labor Conference Board of 1918, months after our entry into the war, was concerned with obtaining agreement on two national duties: (1) recognition of employees' right to organize and to bargain collectively; and (2) the necessity of establishing minimum rates of pay to insure the worker in health and reasonable comfort. In 1941 these policies had already been recognized in federal statutes. The National Labor Relations Act had outlawed employer practices interfering with collective activities of employees and had established machinery whereby employees could designate representatives of their own choosing. The Fair Labor Standards Act had put a floor under wages.

Partly as a result of federal legislation, the development of the war production program found labor extensively organized in such key industries as steel, rubber, automobiles, shipbuilding and the maritime industry. In the last war, the government found it necessary to develop machinery to handle grievances in war production plants. Many employee representation plans, the beginning of company unions, were the result. This time, however, workers and their managements had developed and were accustomed to using collective bargaining machinery. Their regular provision for handling grievances could quickly tackle and adjust the innumerable problems which arose in connection with conversion to war production. The prompt and orderly settlement of differences over rates of pay, seniority rights of shifted workers, changed overtime rules, and the introduction of women and Negroes into fields from which they had been excluded, for instance, meant an incalculable contribution to the good morale essential for top production.

Since labor is united on the war, moreover, it has been possible for the Government to get the cooperation of the American Federation of Labor and the Congress of Industrial Organizations, who are able to speak for labor on important questions of policy. They agreed

production. In August and September time lost from strikes was only 1/10th of 1 per cent of the man-days worked.

Stabilization agreements for war construction and for shipbuilding have provided orderly review of wage rates, and removal of inequitable variations, in order to promote orderly recruitment of labor and to prevent pirating and the competitive bidding up of rates. The unions have cooperated also in removing many peace-time restrictions, which interfered with war production. Thus the A. F. of L. and the C. I. O. agreed to modify overtime regulations by removing the double-time penalty which hampered regular 7-day operation. Many unions have modified their rules to permit the dilution of skilled trades for the duration. Others have changed old rules which prevented the employment of women and of Negroes.

While organized labor is not yet satisfied that it has the representation at policy-making points to which its interest and its special knowledge and ability entitled it, it is playing an increasingly important role in the war agencies. Men from the unions are at work in the War Production Board and on its advisory committees, while representatives of labor sit on the War Labor Board, and on the Management-Labor Policy Committee of the War Manpower Commission.

Another major contribution of organized labor to the war effort has been made possible because of the close contacts and the mutual confidence and cooperation between organized labor and the Government. Recognizing the importance to labor of preventing such an increase in prices as followed World War I, with the resultant dissatisfaction and poor morale, and the disastrous deflation which followed, the representatives of labor agreed that control of wages should be included in the badly needed program for the stabilization of prices.

The extensive labor organization which functions in the key industries, making its contribution to the war effort by settling grievances and peacefully working out major differences, developed in peace-time under the protection of the National Labor Relations Board. The growth of organization led in many plants to questions as to which union, if any, had the right to represent the workers. With a divided labor movement, and in the absence of governmental machinery for solution of the problem, direct action would often have interrupted war produc-

(Continued on page 175)



OWI Photo by Palmer

Workers splicing wire cable. Miles of stout cable are needed for the United States Fleet. Lower: Chairman Millis of the N.L.R.B.



with representatives of management and Government that there should be no strikes. As a result the number of workers involved in strikes, since Pearl Harbor, has been far less than in corresponding months of 1917, in spite of the much greater volume of present

The American Federation of Labor and the War

by

William Green

President, American Federation of Labor

AMERICAN workers are responding in full measure to the nation's call for service on the production front to help win the war.

There is hard work to be done—plenty of it—before our country can see its way to victory. The members of the American Federation of Labor are doing this work.

These men and women of labor—millions of them—are on the job! They have only one aim and purpose right now and that is to help win the war. They say to America:—"Give us the tools and the materials and we will produce the goods!"

In all my experience I have never witnessed a more unanimous and patriotic devotion to duty than that which now prevails among the workers in war industries. That is because the men and women of labor realize that this war is their war, that America must win or all of us will become slaves to Hitler or coolies for the Japs. That is the driving force which is giving new strength to the muscles of American workers and inspiring them to achieve new records of production every day. That is why American labor is working—not as usual—but as never before!

Furthermore, organized labor has made an important contribution to real national unity. Shortly after war broke out, the A. F. of L. and the C. I. O. agreed to lay aside their differences and work together for victory. From the top leadership down through the ranks, the men and women of labor are cooperating as good Americans should.

Some uninformed persons are laboring under the false impression that America has no war labor policy and that Congress should enact one at once.

But we do have a war labor policy in this country—a very definite and constructive one. It was arrived at and adopted shortly after war broke out by a conference of labor and industry representatives called by the President.

This war labor policy is brief but all-important. It provides that there shall be no interruptions of work by strikes or lockouts for the duration of the war and that all disputes shall be settled by peaceful means through machinery provided by the War Labor Board.

Every national and international union in the A. F. of L. has subscribed to this policy. We were, in fact, the first to suggest it. We have taken a solemn pledge not to strike for any cause. Our members have lived up to that pledge almost 100 per cent. Let the record speak. Since the war, production delays due to strikes have virtually disappeared.

The A. F. of L. has not and will not sanction or condone any strike by any of its members as long as this war lasts. I publicly disavow any strikes of any kind by any A. F. of

L. union for the duration. In the few unauthorized, wildcat, local strikes that have occurred since the war, union officials have immediately exerted all their influence to get the men back on the job as soon as possible. And they have succeeded marvelously. Official records show that last year strikes averaged ten days in length. This year such strikes as have taken place were ended within an average of only two days.



Many of our members have been called to the colors. They and the sons and daughters and loved ones of American workers are fighting on the front lines alongside the American citizens from all other walks of life.

Those who are carrying on at home are giving patriotic service on the production front. They are accomplishing production miracles and beating schedules every day.

A. F. of L. building trades workers have made the prompt training of our new Army possible. Within six months they completed construction of cantonments which are, in effect, forty-six cities, housing from 20,000 to 60,000 men each. These projects included the construction of living quarters, powerhouses, roads, stores, hospitals, laundries, mess halls, water supply lines and sewage systems.

Many of these camps are in small, rural communities, far away from any considerable labor supply. Our building trades unions came to the aid of America by recruiting scores of thousands of trained workers. We took them from every part of the country and brought them to the job without any expense to the Government. Our unions shouldered the entire cost themselves.

Furthermore, in the stabilization pact entered into with their employees and the Gov-

ernment, the building trades unions waived double-time overtime standards. This meant a 7 per cent voluntary contribution by each worker from his weekly pay.

Besides Army cantonments and other bases, our building trades workers have completed 63,690 new housing units in war production centers and are now engaged in building 43,000 additional homes and many thousands of new factories. We are proud of their fine record.

The metal trades unions have made similar contributions. Their men are working like beavers in America's shipyards and aircraft plants. Throughout the nation the metal trades unions have made continuous shipyard production possible by establishing schedules for 24 hour a day production, seven days a week.

More than 1,000 of our metal trades and building trades workers are now prisoners of Japan. They were at Guam and Wake when the enemy struck. They dropped their tools and fought side by side with our gallant soldiers and marines until they were finally subdued by superior force.

Almost a hundred thousand of our members are now building America's defenses in Hawaii, in Alaska, in the Canal Zone and in all our new naval and air bases off our coasts. They gave up safe, secure jobs at home to do their bit.

Members of our Teamsters Union rode the Burma Road and are now helping to transport vital supplies to China by other routes.

Members of our maritime unions are sailing the ships and tankers on the high seas and they are daily exposed to the risk of submarine attacks. More than 500 A. F. of L. seamen already have given their lives and others are still reported missing.

All of us are buying War Savings bonds from our weekly earnings. The A. F. of L. has set a billion-dollar goal of War Savings bond purchases by its members for 1942. We will exceed that goal.

Yes, American workers are paying their full share of the cost of this war—in blood, in sweat, in sacrifice and in taxes. They are not complaining. They entered this war with their eyes open as free men and women and they are determined to come out of this war free men and women.

At its recent annual convention, held in Toronto, Canada, the American Federation of Labor voted full support of all the Government's war programs and policies. And it further resolved that when this war is over, the forces of freedom and democracy must win the peace—a peace that will endure and that will assure liberty and security in line with the Four Freedoms to all the peoples of the earth.

The CIO and the War

by

Philip Murray,

President, Congress of Industrial Organizations

IN a message cabled to the Congress of Industrial Organizations last March, General Douglas MacArthur declared it to be his firm conviction that labor will "prove the indestructible backbone that will determine the present vital struggle."

This conviction is shared by all who truly know the American working people and our labor movement. Speaking for the Congress of Industrial Organizations, I can say that long before Pearl Harbor our unions and our membership were at work strengthening the productive backbone upon which our present war effort depends.

As far back as 1940, in fact, we made defense production our first concern, advancing our Industry Council plan for expanding the production of all essential war materials. And in every industry, the CIO unions were the first to call for speedy plant conversion and the elimination of bottlenecks and shortages, by the full use of all available facilities and their planned expansion.

At the national convention of the CIO in Detroit in the fall of 1941, we expressed our complete support for the foreign policies of President Roosevelt and dedicated all our efforts to the promotion of the world struggle against Hitlerism.

So when the United States finally became directly involved in the war, there was not a moment's doubt or hesitation among the membership of the CIO. We went all-out for victory from the very start, subordinating every other consideration to this all-important purpose.

The CIO joined at once with the rest of organized labor in a voluntary agreement to lay aside the strike weapon for the duration of the war, and to do everything within its power to maintain uninterrupted production.

In every war plant, our unions take the lead, through labor-management committees and in every other way, in all steps necessary to produce more and more of the ships, planes, tanks and other war materials needed by our armed forces and those of the United Nations.

We offer to management and to government our complete cooperation in the spirit of national unity. For we realize that all groups must pull together, without selfish bickering and quibbling, if our total war effort is to be crowned with success.

The men and women of labor are not only our soldiers of production, they are also the backbone of every other form of war activity. Most of our fighting men come from the ranks of labor in industry and on the countryside. On every battlefield, on land, at sea and in the air, CIO members are fighting for their country and for the cause of freedom and democracy. Every one of our

unions can point with pride to long and growing lists of its members who are now in the armed forces and many of whom have been honored for heroic deeds.

It may be noted here that it is not only our men in uniform who risk their lives in this war. Some of the heaviest casualties have occurred among our merchant seamen, among the CIO union men who plow the seas to carry supplies to our armed forces and those of our allies all over the world.

In civilian defense, in war relief and everywhere else there is a job to be done to win this war, you will find the men and women of organized labor giving their services unstintingly and enthusiastically.



The reasons for American labor's attitude toward this war are not far to seek. For this is labor's war in a deeper and wider sense than has ever been true before. Certainly labor always bears the heaviest burdens in any war. But never before has it had so much at stake.

For the purposes and doctrines which have linked together German Nazism, Italian Fascism and Japanese imperialism are directed against everything for which the labor movement stands. Hitler and his associates have made it their first business to destroy the labor unions in every country that has come under their iron heel. They have done so because they know full well that organized labor is the strongest bulwark of democracy and the rights of the common people, and the bitterest enemy of fascist dictatorship and oppression.

Hitler's Axis is more than a military menace to every country that stands in the way of its imperialistic program of world con-

quest. It is also the promoter of hideous doctrines of human enslavement that know no national boundaries but have their sympathizers wherever reaction seeks by tyranny and violence to crush the democratic aspirations of the common people for social progress.

The labor movement has been at war with these fascist tendencies and doctrines long before Hitler's armies began to march. As it has seen them spread from country to country by invading troops and native Quislings, its opposition has become steeled to grim determination to fight them to the death.

American labor knows that victory for the Axis would mean not only defeat and debasement for our loved country but also the destruction of its democratic institutions. Labor unions would be no more, and our working people would be doomed to the same kind of slavery as has been imposed on the workers in every Axis-dominated country.

These are some of the reasons why organized labor is not only a loyal follower but also the most active leader in this tremendous struggle of all the freedom-loving peoples against the world menace of Axis fascism.

America can depend on her working people in this greatest crisis in world history. In industry, in the armed forces, in civilian defense, and wherever else they may be, the men and women of labor will work and fight with boundless energy and devotion until victory is assured.



Workers ready an engine for the Navy.

American Labor in the War

by

H. A. Millis,

Chairman, National Labor Relations Board

IN the labor relations field, the United States entered this war under far more favorable circumstances than last time. In early 1917 the trade union movement included not more than three million workers. Labor in most of the key industries was unorganized, with no experience in collective bargaining. Serious differences of opinion existed within the labor movement as to our participation in the war. At the end of 1941, in contrast, organized labor counted over eleven million members. While the labor movement was divided and competing, with minor exceptions it was united on the war program.

During the war emergency of 1917-1918 agreement had first to be obtained on policies which in 1941 were matters of established law. Thus, the War Labor Conference Board of 1918, months after our entry into the war, was concerned with obtaining agreement on two national duties: (1) recognition of employees' right to organize and to bargain collectively; and (2) the necessity of establishing minimum rates of pay to insure the worker in health and reasonable comfort. In 1941 these policies had already been recognized in federal statutes. The National Labor Relations Act had outlawed employer practices interfering with collective activities of employees and had established machinery whereby employees could designate representatives of their own choosing. The Fair Labor Standards Act had put a floor under wages.

Partly as a result of federal legislation, the development of the war production program found labor extensively organized in such key industries as steel, rubber, automobiles, shipbuilding and the maritime industry. In the last war, the government found it necessary to develop machinery to handle grievances in war production plants. Many employee representation plans, the beginning of company unions, were the result. This time, however, workers and their managements had developed and were accustomed to using collective bargaining machinery. Their regular provision for handling grievances could quickly tackle and adjust the innumerable problems which arose in connection with conversion to war production. The prompt and orderly settlement of differences over rates of pay, seniority rights of shifted workers, changed overtime rules, and the introduction of women and Negroes into fields from which they had been excluded, for instance, meant an incalculable contribution to the good morale essential for top production.

Since labor is united on the war, moreover, it has been possible for the Government to get the cooperation of the American Federation of Labor and the Congress of Industrial Organizations, who are able to speak for labor on important questions of policy. They agreed



OWI Photo by Palmer
Workers splicing wire cable. Miles of stout cable are needed for the United States Fleet. Lower: Chairman Millis of the N.L.R.B.



with representatives of management and Government that there should be no strikes. As a result the number of workers involved in strikes, since Pearl Harbor, has been far less than in corresponding months of 1917, in spite of the much greater volume of present

production. In August and September time lost from strikes was only 1/10th of 1 per cent of the man-days worked.

Stabilization agreements for war construction and for shipbuilding have provided orderly review of wage rates, and removal of inequitable variations, in order to promote orderly recruitment of labor and to prevent pirating and the competitive bidding up of rates. The unions have cooperated also in removing many peace-time restrictions, which interfered with war production. Thus the A. F. of L. and the C. I. O. agreed to modify overtime regulations by removing the double-time penalty which hampered regular 7-day operation. Many unions have modified their rules to permit the dilution of skilled trades for the duration. Others have changed old rules which prevented the employment of women and of Negroes.

While organized labor is not yet satisfied that it has the representation at policy-making points to which its interest and its special knowledge and ability entitled it, it is playing an increasingly important role in the war agencies. Men from the unions are at work in the War Production Board and on its advisory committees, while representatives of labor sit on the War Labor Board, and on the Management-Labor Policy Committee of the War Manpower Commission.

Another major contribution of organized labor to the war effort has been made possible because of the close contacts and the mutual confidence and cooperation between organized labor and the Government. Recognizing the importance to labor of preventing such an increase in prices as followed World War I, with the resultant dissatisfaction and poor morale, and the disastrous deflation which followed, the representatives of labor agreed that control of wages should be included in the badly needed program for the stabilization of prices.

The extensive labor organization which functions in the key industries, making its contribution to the war effort by settling grievances and peacefully working out major differences, developed in peace-time under the protection of the National Labor Relations Board. The growth of organization led in many plants to questions as to which union, if any, had the right to represent the workers. With a divided labor movement, and in the absence of governmental machinery for solution of the problem, direct action would often have interrupted war produc-

(Continued on page 175)

The American Federation of Labor and the War

by

William Green

President, American Federation of Labor

AMERICAN workers are responding in full measure to the nation's call for service on the production front to help win the war.

There is hard work to be done—plenty of it—before our country can see its way to victory. The members of the American Federation of Labor are doing this work.

These men and women of labor—millions of them—are on the job! They have only one aim and purpose right now and that is to help win the war. They say to America:—"Give us the tools and the materials and we will produce the goods!"

In all my experience I have never witnessed a more unanimous and patriotic devotion to duty than that which now prevails among the workers in war industries. That is because the men and women of labor realize that this war is their war, that America must win or all of us will become slaves to Hitler or coolies for the Japs. That is the driving force which is giving new strength to the muscles of American workers and inspiring them to achieve new records of production every day. That is why American labor is working—not as usual—but as never before!

Furthermore, organized labor has made an important contribution to real national unity. Shortly after war broke out, the A. F. of L. and the C. I. O. agreed to lay aside their differences and work together for victory. From the top leadership down through the ranks, the men and women of labor are cooperating as good Americans should.

Some uninformed persons are laboring under the false impression that America has no war labor policy and that Congress should enact one at once.

But we do have a war labor policy in this country—a very definite and constructive one. It was arrived at and adopted shortly after war broke out by a conference of labor and industry representatives called by the President.

This war labor policy is brief but all-important. It provides that there shall be no interruptions of work by strikes or lockouts for the duration of the war and that all disputes shall be settled by peaceful means through machinery provided by the War Labor Board.

Every national and international union in the A. F. of L. has subscribed to this policy. We were, in fact, the first to suggest it. We have taken a solemn pledge not to strike for any cause. Our members have lived up to that pledge almost 100 per cent. Let the record speak. Since the war, production delays due to strikes have virtually disappeared.

The A. F. of L. has not and will not sanction or condone any strike by any of its members as long as this war lasts. I publicly disavow any strikes of any kind by any A. F. of

L. union for the duration. In the few unauthorized, wildcat, local strikes that have occurred since the war, union officials have immediately exerted all their influence to get the men back on the job as soon as possible. And they have succeeded marvelously. Official records show that last year strikes averaged ten days in length. This year such strikes as have taken place were ended within an average of only two days.



Many of our members have been called to the colors. They and the sons and daughters and loved ones of American workers are fighting on the front lines alongside the American citizens from all other walks of life.

Those who are carrying on at home are giving patriotic service on the production front. They are accomplishing production miracles and beating schedules every day.

A. F. of L. building trades workers have made the prompt training of our new Army possible. Within six months they completed construction of cantonments which are, in effect, forty-six cities, housing from 20,000 to 60,000 men each. These projects included the construction of living quarters, powerhouses, roads, stores, hospitals, laundries, mess halls, water supply lines and sewage systems.

Many of these camps are in small, rural communities, far away from any considerable labor supply. Our building trades unions came to the aid of America by recruiting scores of thousands of trained workers. We took them from every part of the country and brought them to the job without any expense to the Government. Our unions shouldered the entire cost themselves.

Furthermore, in the stabilization pact entered into with their employes and the Gov-

ernment, the building trades unions waived double-time overtime standards. This meant a 7 per cent voluntary contribution by each worker from his weekly pay.

Besides Army cantonments and other bases, our building trades workers have completed 63,690 new housing units in war production centers and are now engaged in building 43,000 additional homes and many thousands of new factories. We are proud of their fine record.

The metal trades unions have made similar contributions. Their men are working like beavers in America's shipyards and aircraft plants. Throughout the nation the metal trades unions have made continuous shipyard production possible by establishing schedules for 24 hour a day production, seven days a week.

More than 1,000 of our metal trades and building trades workers are now prisoners of Japan. They were at Guam and Wake when the enemy struck. They dropped their tools and fought side by side with our gallant soldiers and marines until they were finally subdued by superior force.

Almost a hundred thousand of our members are now building America's defenses in Hawaii, in Alaska, in the Canal Zone and in all our new naval and air bases off our coasts. They gave up safe, secure jobs at home to do their bit.

Members of our Teamsters Union rode the Burma Road and are now helping to transport vital supplies to China by other routes.

Members of our maritime unions are sailing the ships and tankers on the high seas and they are daily exposed to the risk of submarine attacks. More than 500 A. F. of L. seamen already have given their lives and others are still reported missing.

All of us are buying War Savings bonds from our weekly earnings. The A. F. of L. has set a billion-dollar goal of War Savings bond purchases by its members for 1942. We will exceed that goal.

Yes, American workers are paying their full share of the cost of this war—in blood, in sweat, in sacrifice and in taxes. They are not complaining. They entered this war with their eyes open as free men and women and they are determined to come out of this war free men and women.

At its recent annual convention, held in Toronto, Canada, the American Federation of Labor voted full support of all the Government's war programs and policies. And it further resolved that when this war is over, the forces of freedom and democracy must win the peace—a peace that will endure and that will assure liberty and security in line with the Four Freedoms to all the peoples of the earth.

The CIO and the War

by

Philip Murray,

President, Congress of Industrial Organizations

IN a message cabled to the Congress of Industrial Organizations last March, General Douglas MacArthur declared it to be his firm conviction that labor will "prove the indestructible backbone that will determine the present vital struggle."

This conviction is shared by all who truly know the American working people and our labor movement. Speaking for the Congress of Industrial Organizations, I can say that long before Pearl Harbor our unions and our membership were at work strengthening the productive backbone upon which our present war effort depends.

As far back as 1940, in fact, we made defense production our first concern, advancing our Industry Council plan for expanding the production of all essential war materials. And in every industry, the CIO unions were the first to call for speedy plant conversion and the elimination of bottlenecks and shortages, by the full use of all available facilities and their planned expansion.

At the national convention of the CIO in Detroit in the fall of 1941, we expressed our complete support for the foreign policies of President Roosevelt and dedicated all our efforts to the promotion of the world struggle against Hitlerism.

So when the United States finally became directly involved in the war, there was not a moment's doubt or hesitation among the membership of the CIO. We went all-out for victory from the very start, subordinating every other consideration to this all-important purpose.

The CIO joined at once with the rest of organized labor in a voluntary agreement to lay aside the strike weapon for the duration of the war, and to do everything within its power to maintain uninterrupted production.

In every war plant, our unions take the lead, through labor-management committees and in every other way, in all steps necessary to produce more and more of the ships, planes, tanks and other war materials needed by our armed forces and those of the United Nations.

We offer to management and to government our complete cooperation in the spirit of national unity. For we realize that all groups must pull together, without selfish bickering and quibbling, if our total war effort is to be crowned with success.

The men and women of labor are not only our soldiers of production, they are also the backbone of every other form of war activity. Most of our fighting men come from the ranks of labor in industry and on the countryside. On every battlefield, on land, at sea and in the air, CIO members are fighting for their country and for the cause of freedom and democracy. Every one of our

unions can point with pride to long and growing lists of its members who are now in the armed forces and many of whom have been honored for heroic deeds.

It may be noted here that it is not only our men in uniform who risk their lives in this war. Some of the heaviest casualties have occurred among our merchant seamen, among the CIO union men who plow the seas to carry supplies to our armed forces and those of our allies all over the world.

In civilian defense, in war relief and everywhere else there is a job to be done to win this war, you will find the men and women of organized labor giving their services unstintingly and enthusiastically.



The reasons for American labor's attitude toward this war are not far to seek. For this is labor's war in a deeper and wider sense than has ever been true before. Certainly labor always bears the heaviest burdens in any war. But never before has it had so much at stake.

For the purposes and doctrines which have linked together German Nazism, Italian Fascism and Japanese imperialism are directed against everything for which the labor movement stands. Hitler and his associates have made it their first business to destroy the labor unions in every country that has come under their iron heel. They have done so because they know full well that organized labor is the strongest bulwark of democracy and the rights of the common people, and the bitterest enemy of fascist dictatorship and oppression.

Hitler's Axis is more than a military menace to every country that stands in the way of its imperialistic program of world con-

quest. It is also the promoter of hideous doctrines of human enslavement that know no national boundaries but have their sympathizers wherever reaction seeks by tyranny and violence to crush the democratic aspirations of the common people for social progress.

The labor movement has been at war with these fascist tendencies and doctrines long before Hitler's armies began to march. As it has seen them spread from country to country by invading troops and native Quislings, its opposition has become steeled to grim determination to fight them to the death.

American labor knows that victory for the Axis would mean not only defeat and debasement for our loved country but also the destruction of its democratic institutions. Labor unions would be no more, and our working people would be doomed to the same kind of slavery as has been imposed on the workers in every Axis-dominated country.

These are some of the reasons why organized labor is not only a loyal follower but also the most active leader in this tremendous struggle of all the freedom-loving peoples against the world menace of Axis fascism.

America can depend on her working people in this greatest crisis in world history. In industry, in the armed forces, in civilian defense, and wherever else they may be, the men and women of labor will work and fight with boundless energy and devotion until victory is assured.



Workers ready an engine for the Navy.

OWI Photo

The Independent Unions in the Shipbuilding Industry and Their War Efforts

by
E. H. Petterson,

President, East Coast Alliance of Independent Shipyard Unions of America

LONG before the day of the bombing of Pearl Harbor, December 7, 1941, the Independent Unions in the Shipbuilding industry on the East Coast organized what is now known as the East Coast Alliance of Independent Shipyard Unions of America.

During the days of our vast defense program prior to the outbreak of the war it became apparent to the Independent Unions the necessity of close cooperation between labor and management in order to meet the requirements of our government. Ships had to be built with the least possible delay. Strikes and lock-outs were looked upon as detrimental to the defense program and clauses were inserted in the Independent Unions' sole bargaining contracts to outlaw strikes and lock-outs and arranged for disputes to be settled around the conference table or through arbitration.

During the days when the Shipbuilding Stabilization program was first undertaken by the Office of Production Management, in the early part of 1941, the Independent

Unions displayed their willingness to cooperate although they were denied representation on the Shipbuilding Stabilization Committee. Conferences were held by representatives of the Navy Department, Maritime Commission, representatives of Management and representatives of the Independent Unions of the Atlantic Coast when agreements were concluded and accord reached on the several points of the Shipbuilding Stabilization program, one of the most important being no strikes and lock-outs. This has been strictly adhered to by the Independent Unions. Up to the present time there has been no work stoppage or strike in any of the yards where the Independent Unions hold the sole bargaining contract.

Contracts were re-negotiated with the employers in the various Independent yards in conformity with the East Coast Shipbuilding Stabilization Agreement and the membership of the unions promptly ratified the new agreement.

In March, 1942, a conference of the Ship-



Shipbuilders setting the ribs of one of the new mine sweepers in an eastern yard. Some of these men had been house carpenters but were quickly adapted to their new work.

building Stabilization Committee was called. It was finally decided to hold the conference in Chicago. Again pressure was exerted and the Independent Unions were excluded. Vigorous protests were made by the East Coast Alliance of Independent Shipyard Unions against this unfair and undemocratic procedure.

However, governmental agencies, realizing that over 100,000 workers in the industry should not be ignored, called a conference. This conference was called by Mr. Paul R. Porter, Chairman of the Shipbuilding Stabilization Committee of the War Production Board, with the concurrence of the Navy Department and U. S. Maritime Commission, June 10, 1942.

Space will not permit the relation of what took place at these conferences, but the Independent Unions again reiterated their former stand as to strikes and lockouts and pledged an all out effort in the war program. It was also agreed that the War Production Board, Navy Department and U. S. Maritime Commission would endeavor to work out a plan by which the East Coast Alliance of Independent Shipyard Unions of America and shipbuilders with whom they have collective bargaining contracts will be officially represented in the interpretation and administration of Zone Standards insofar as they affect yards under the jurisdiction of the East

(Continued on page 179)

DECEMBER 7, 1941

RECORD OF THE FIRST YEAR

(The following account of the first year of the United States' participation in World War II was prepared entirely from official sources and official statements.)

AS the first year of participation by the United States in World War II draws to a close, the offensive which all of the United Nations waited for has started, and our troops are engaged in a campaign toward final victory.

Yet even before this offensive, men of the Army, Navy and Marines had spread to Australia, to India, to China, to the Mediterranean, to the oceans and lands thousands of miles from our own shores. We had struck the enemy where we could, by sea and by air. We had maintained routes of supply in the face of tremendous difficulty. And we had thrown into gear a war machine which President Roosevelt has promised will be the greatest in the world.

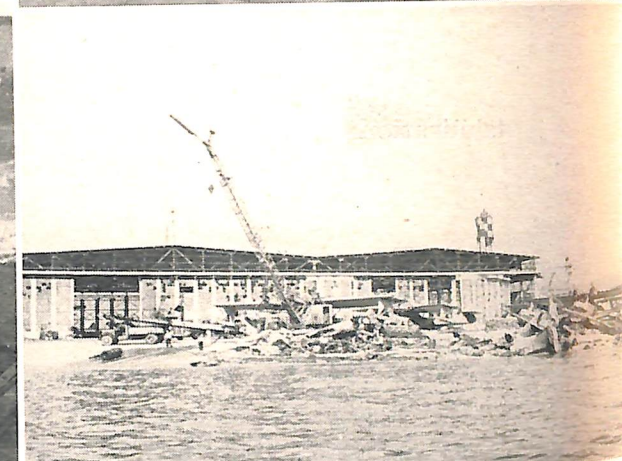
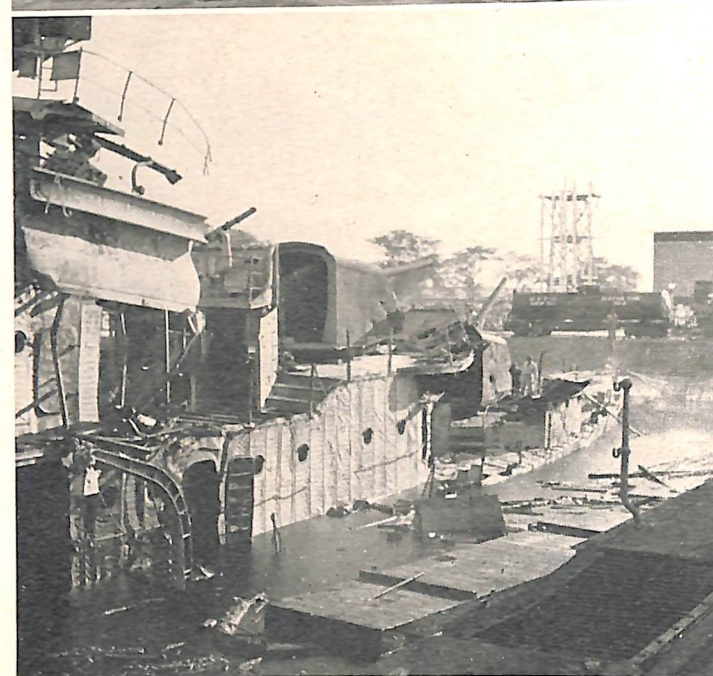
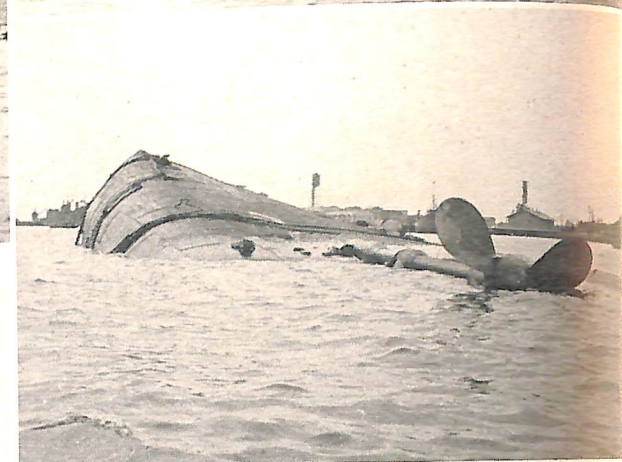
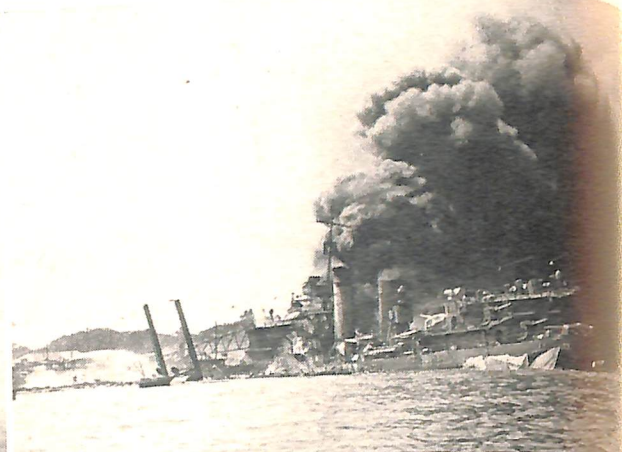
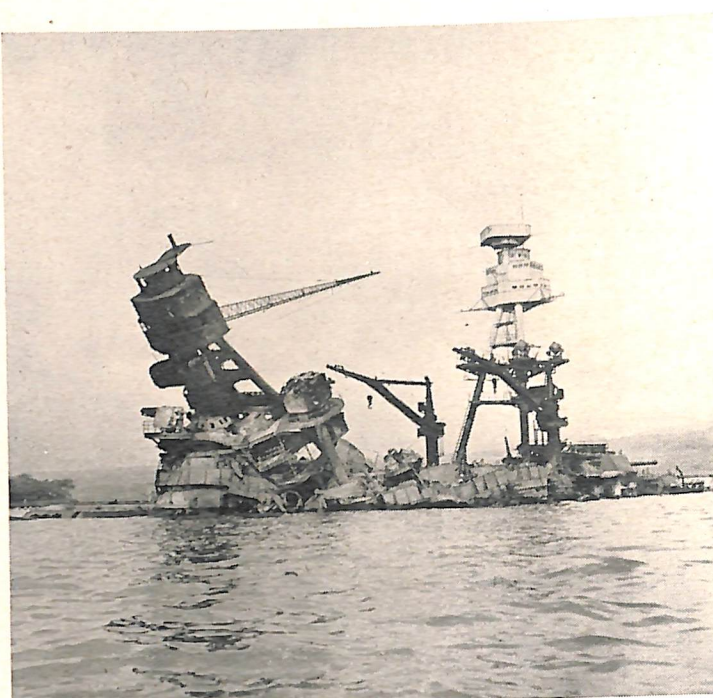
Against an enemy which had lived for war, we, who have lived for peace, had suffered grievous defeats which our offensive actions in the Solomons, at Midway, in the Coral Sea, our raids on Tokyo and on Japanese-held bases around Australia had not made up for. With the exception of two Aleutian islands which the Japanese abandoned, we had regained none of the territory we had lost. In one important engagement—the defense of Java—our naval forces, together with other forces of the United Nations, had been decisively defeated.

In the first ten months of war our weight had not been sufficient to destroy the enemy's power in Russia, China, and other lands of invasion. Although we had manufactured for our allies ever-increasing amounts of materials for war, the initiative had remained with the enemy. Despite our sea and air attacks on enemy ships and land installations in the Pacific, we had not crippled our foe seriously enough to put him on the defensive.

Our country had not been invaded. Our cities had not been bombed. We had been free to raise, train and equip an army, to build ships, to make airplanes, with no handicaps other than those imposed by nature and by ourselves. We had time to organize a system of home defense. Our sea routes for oil from the west to the east had been interrupted by enemy submarines, but we had been able to supplement this method of transportation with others, and our war effort had not been gravely upset. Our manpower had not been reduced by epidemics. While there had been some strikes, there had been no violent internal disturbances to disrupt our industrial progress.

These things had been in our favor. Why, many asked, were we not then doing more in the war? Where was the Second Front? Were we going to wait a year to start fighting?

The answer was provided at 9 p. m. the night of November 7, when President Roosevelt announced that "a powerful American force equipped with adequate weapons of modern warfare and under American com-



Results of the treacherous Jap sneak attack on Pearl Harbor December 7, 1941—the "date which will live in infamy." Upper left, Wreckage of USS Arizona. Lower left, USS Downes, hit by Japanese bombs (USS Cassin, in about same condition, lies behind the Downes). Upper right, USS Shaw shortly after Japanese aerial bomb made direct hit on forecastle. Center right, USS Utah capsized. Lower right, PBY patrol planes wrecked on Ford Island. Below, Magazine of USS Shaw exploding. A most remarkable combat photograph, made at the exact moment the destroyer blew up.

mand is today landing on the Mediterranean and Atlantic coasts of the French colonies in Africa."

The story of that A.E.F. is an unfinished one. That its initial success resulted from months of careful planning has been related in detail, in the newspapers of the land. But back of that success was not only exact planning by military experts, but a long year during which a nation fought to throw off the lethargy engendered by peace and a feeling of security. It was not easy to discard that burden. It had become pretty firmly attached to us. Many of us were made aware that we might have a difficult struggle with ourselves before we began to fight the enemy.

THE START

Navy Department Communique No. 107, issued August 17, read:

"Transport-borne, amphibious forces of the



DECEMBER 7, 1942

OF WAR AT HOME AND ABROAD



U. S. Navy Photos

Some of the replies up to December 7, 1942. Upper left: A Jap torpedo plane, symbolic of the hundreds that have been shot down, leaves a white tongue of flame as U. S. Navy anti-aircraft fire downs it. Upper right: A Jap heavy cruiser of the Mogami class after being bombed by U. S. carrier-based aircraft. Left center: The Jap carrier Ryukaku nears her end (note U. S. Navy plane veering off to the right after dropping torpedo). Lower right: A Japanese transport burning and sinking in Kiska Harbor after being hit by a U. S. Army bomber. (Note additional ships and installations in harbor.) Lower left: A carrier of the Shokaku class which was set ablaze by U. S. Navy torpedo and dive bombing planes. Below: A sinking Japanese freighter photographed through the periscope of the U. S. submarine that fired the torpedo.



United States Marine Corps made several landings on islands in the Guadalcanal-Tulagi area. Vigorous enemy resistance was rapidly overcome and a number of Japanese prisoners were taken. The shore positions taken by United States forces have since been developed and now are well established."

This attack on islands in the Solomon group, which the Japs occupied last March, was the first invasion by our troops of enemy territory in the war.

The defeats inflicted upon us included Pearl Harbor, where 2,340 were killed, 946 wounded, three ships disabled and others damaged, many planes destroyed on the ground and military installations wrecked; Wake Island, taken by the Japs after 378 Marines had withstood 14 days of assault by overwhelming forces; the Philippines, where,

according to unofficial figures, some 42,000 United States and Filipino troops were captured or killed since the beginning of the campaign to the fall of Corregidor May 6; the loss of 43 ships, among them the battleship Arizona, the aircraft tender Langley, and the carriers Lexington and Yorktown. By November 7 the toll amounted to 70 ships lost, 49 presumed lost, 9 demolished to prevent capture, and 12 damaged—a total of 140 out of action.

The list of enemy ships sunk totals 178; this includes at least six aircraft carriers, 11 cruisers, and 26 destroyers. Enemy ships probably sunk amount to 34, and damaged, 102. As early as December 26, less than three weeks after Pearl Harbor, an Army bomber sank a Japanese submarine off the California coast with three bombs.

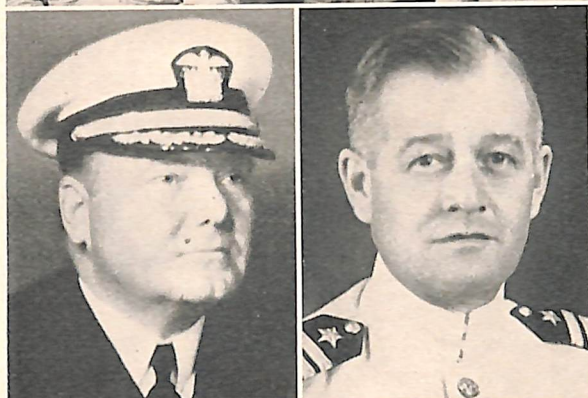
Besides our offensives in Africa, at Midway, the Solomons, May's battle of the Coral Sea, and over Tokyo, we have bombed Rumanian oil fields; sunk Italian ships in the Mediterranean; wrecked airdrome installations on Jap-occupied Wake Island; participated in allied raids over Tobruk; sunk auxiliary vessels and cargo ships in Far Eastern waters; brought down Italian bombers over Malta; sent a force of planes 2,000 miles from Australia to bomb the Jap conquerors of the Philippines with a loss of only one plane out of 13; launched Flying Fortresses upon the enemy in the Burma war theater and sent more than 100 Fortresses and Liberators to bomb factories in Lille, France, which were turning out war goods for Germany; and transported and maintained troops in Australia, England, Egypt, Ireland, New Guinea, the New Hebrides and the Fiji Islands.

On one day—August 13—our forces in the Solomons, strongly reinforced, closed in on strategic Tulagi Harbor; MacArthur's planes raided Jap warships and transports off New Guinea; United States fliers raided Japanese bases in Hunan, China; American Army bombers crippled three out of four Italian cruisers near the Axis-held Greek port of Pylos; and our airmen, piloting our own and English ships, flew "wing to wing" with R.A.F. fliers in attacks on Germans in Western Europe.

OUR AIR FORCE

In one year of war the airplane has become one of our weapons of greatest force. It prepared the way for our attack on the Solomons, the troops reaching the beach under strong protection of carrier-based aircraft. It was most important in our invasion of northern Africa. It has since assisted in repelling counter-attacks, allowing the troops time to dig in and establish bases from which to launch further offensives.

The weapons we give our men—including airplanes—cannot be inferior to the weapons of our enemies. If we give them anything less than the finest we are able to produce, we are sending men to death as surely as sending



U. S. Navy Photos

Some of the flag officers commanding units of the United States Fleet. Upper row, left to right: Admiral Royal E. Ingersoll, USN, CinC Atlantic Fleet; Vice Admiral Jonas H. Ingram, USN, Commander South Atlantic Force, Atlantic Fleet; Vice Admiral Arthur S. Carpender, commander U. S. Naval Forces in Southwest Pacific; and Rear Admiral Henry K. Hewitt, USN, commander of Amphibious Forces, Atlantic Fleet. Center: Admiral William F. Halsey, Jr., USN, commander of the U. S. Naval Forces in the South Pacific, is shown with members of his staff on the signal bridge of an aircraft carrier. Left to right: Lt. Col. J. P. Brown, USMC; Lt. H. D. Moulton, USNR; Lt. Comdr. S. E. Burroughs, Jr., USN; Capt. M. R. Browning, USN; Chief Signalman R. Gardner, USN; Lt. Comdr. G. E. Griggs, USN; Admiral Halsey; Capt. B. T. Holcomb, USMC; Lt. Comdr. L. J. Dow, USN; Capt. B. Groesbeck (MC) USN; Chief Quartermaster H. G. Gibson, USN; Lt. Comdr. W. H. Ashford, USN; Lt. Comdr. B. B. Nichol, USN; Comdr. W. H. Buracker, USN; Chief Yeoman P. T. Hunt, USN; Chief Yeoman H. C. Carroll, USN; and Chief Yeoman I. W. Bowman, USN. Bottom left, Rear Admiral John F. Shafroth, Jr., USN, commander of U. S. Naval Forces in Southeast Pacific; and Rear Admiral Robert C. Giffin, USN, commander of a Task Force.

them before a firing squad. Our aircraft, working with those of our allies, must be the equal of, if not superior to, anything our enemies can hurl against us, for without air power, the war will be lost.

Unfortunately, an airplane cannot be all things to all conditions. The fighter that performs capably in the Southwest Pacific may be unsuitable for the defense of Britain; the bomber that is best for heavy night attacks on German industry may not be the best aircraft for the Solomons. Some American planes have turned in marvelous performances wherever they have flown. The true test of a plane is in a scrap—and no matter how it acts in a wind-tunnel or over the field, combat must give it the final okay.

Our Navy planes, compared plane for plane in battle performance with the equipment of other navies, are superior in every category. This was not true of the early days of the conflict. It is true now.

Army planes, in the Pacific area, were handicapped in the early stages of the war by being forced by the surprise attack to retreat to makeshift fields and to use inadequate repair facilities. Therefore they did not do as well as they might have had they been able to retain their original bases. Yet in the Pacific area, and in China, the overall battle score of Army aircraft has been better than the enemy's.

Both the Bell P-39 and the Curtiss P-40, medium-altitude fighters, have proven not suitable for operations over England, for they are outclassed in high-altitude performance by the British Spitfire and the German Messerschmitt 109 and the Focke-Wulf 190. The only American high-output liquid-cooled engine, the Allison, which powers both the P-39 and the Curtiss P-40, started late in its development and under great difficulties. It has not yet caught up with its opposite numbers, Britain's Rolls-Royce, also made in this

country, and Germany's Daimler-Benz.

Yet the P-39 and the P-40 have shown that they are valuable weapons in Russia and Northern Africa. The reason is in the tactical situation. Both are battlefield areas. A battle situation calls for a predominance of low-altitude work by dive-bombers, bomber-strafters, and army cooperation craft of all kinds, including low-flying pursuits. To situations of this kind the heavily armed and armored P-39 and P-40 are well suited. Their deficiency in altitude performance does not count heavily against them. Thus in the desert the P-40 has been, and still is, a first line pursuit weapon. With its latest improvement, it is probably the most efficient fighter in the desert.

In the similar situation on the Russian front, the cannon-carrying Bell P-39 has been effectively employed by our allies. The Russians report that it has turned in a crack battlefield performance, even beating the best of the Luftwaffe's pursuits. Similarly, in the Aleutians the striking power and range of the P-39 have made it one of our most valuable weapons.

Our big four-motored Consolidated B-24 bombers have not yet been tested in all areas. Where they have been tried, their performance has been superior. The B-17—the Flying Fortress—has performed excellently. Our medium and light bombers are the best in the world. They have been tested in all theatres. And United States dive-bombers, developed over a long period by the Navy, have no equal among planes in combat in any country on the globe.

We have learned many lessons about airplanes since the beginning of the war in 1939, not only from our friends, but from our foes. Those lessons are being put to practice.

DIFFICULT TASK AHEAD

We have recognized that this war cannot be won except by smashing our enemies, penetrating their defenses, driving them back in the air, on the land and the sea, until they have been rendered impotent—not only for a short period, but for years, perhaps for centuries. We have recognized the need to destroy completely the militarists in Germany, Japan and Italy, so they will no longer be a menace to the peace of the world. To those who believe that Germany is our principal foe, and that Japan can be "mopped up" when we have beaten Germany, former Ambassador to

Aftermath of Pearl Harbor was the appointment by the President of this special board of inquiry. Left to right are: Brig. Gen. (now Lt. Gen.) Joseph T. McNarney; Admiral W. H. Standley, Justice Owen J. Roberts, chairman; Admiral J. M. Reeves; Maj. Gen. Frank R. McCoy, and Mr. Walter Bruce Howe, Recorder. The Board found, among other things, that "errors in judgment were the effective causes for the success of the attack."



Army Signal Corps Photo

Japan, Joseph C. Grew, said on September 18: "The Japanese will not crack. They will not crack morally or psychologically or economically even when eventual defeat stares them in the face—only by utter physical exhaustion of their men and materials can they be defeated."

The immensity of this task has been accepted. We have undertaken the training and equipping of an army of at least 4,500,000 by the end of this year. Next year there will be more, and more still until the end. These men will have to perform their part in crushing our enemies on the field of battle.

The glory of our forces at Guam, Wake and the Philippines will live beyond present memory. We are still too close to those terrible days to see them clearly, to appreciate the full meaning of the price paid by the defenders.

At the very onset of our greatest struggle we were provided with a pattern of heroism which should have called from each one of us the courage and sacrifice which lie deepest. What could we who were at home do to measure up to the bravery of those men who suffered pain, thirst, hunger, discouragement, while they fired upon the enemy from holes in the baked earth? What privations could we accept, what tasks could we perform at home which would approach the blood-drenched labors of men who battled to the death, knowing that no help was coming?

We pledged ourselves to manufacture the goods of war on a scale never before attempted in the history of the world. We promised those men who fell on Bataan, at Guam, at Wake, that we would put weapons in the hands of millions of our own men and into the hands of our allies, until the enemy was overwhelmed, crushed in final defeat.

We said we would avenge the deaths of those who fought to the end without hope of reinforcement.

We discovered, soon enough, the magnitude of this task. It is true that when Pearl Harbor was bombed we had been making war goods, in large amounts, for about 18 months. On May 26, 1940, President Roosevelt declared that he was calling upon American manufacturers to produce "war material of all kinds—airplanes, tanks, guns, ships." Much of this was to go to countries, which, although not our allies before Pearl Harbor,



Admiral Thomas C. Hart, USN, reporting to Secretary Knox upon his return to Washington after having conducted the naval campaign of the United Nations in the Southwest Pacific.



U. S. Navy Photo

Once each week, the eight highest ranking United States and British Army, Navy and Air officers in this country meet in a conference designed to coordinate and further the war effort of the two nations. Often, as when this photograph was taken, aides and experts of both countries are asked to participate in the discussion on which the outcome of a battle, a campaign or the fate of one—or many—nations may hinge. The British members of the Combined Chiefs of Staff, starting second from the left, are: Rear Adm. W. R. Patterson, Field Marshal Sir John Dill, Brigadier Vivian Dykes, Secretary to the British conferees, Lt. Gen. C. N. Macready, and Air Marshal D. C. S. Ewitt. Across the table are the United States members of the Combined Chiefs of Staff. Starting second from the right are: Admiral Ernest J. King, commander in chief of the U. S. Fleet and Chief of Naval Operations; Admiral William D. Leahy, Chief of Staff to the Commander in Chief of the Army and Navy; Brig. Gen. J. R. Deane, Secretary to the United States conferees; General George C. Marshall, Chief of Staff of the Army; (the vacant seat to his right is usually occupied by Lt. Gen. Henry H. Arnold, Commanding General of the Army Air Forces. In the foreground are (left) Comdr. the Hon. R. D. Coleridge, and, right, next to Admiral King, is Vice Adm. F. J. Horne, vice chief of Naval Operations. At the far end of the table, left to right: Lt. Col. T. W. Hammond, jr., and Lt. Gen. J. T. McNarney, deputy Chief of Staff, U. S. Army.

were considered vital to the security of this country. We were arming our friends, and we were arming ourselves.

Germany had been arming since 1933, Japan since 1931. These nations, who with Italy were to become our enemies, had to look only to themselves. They did not have to arm others. We did. Under the Lend-Lease Act of March 11, 1941, authority was given for the sale, transfer of title, lease, loan, or other disposal of any type of material, service and information to any country whose defense the President deemed vital to the defense of the United States.

At first, when the battle of Britain was raging, lend-lease materials went primarily to the United Kingdom. As the war spread to Africa, the Middle East, to Australia, aid was sent to those areas. As Russia came into the fight against Germany, war goods began to flow to Russia. Gettings materials to China is difficult at present, but development of other means of transportation will, it is hoped, solve this problem.

We've been sending war stuff to our allies in ever-increasing amounts. In July, 1941, the value of goods transferred and services rendered was \$100,000,000. In November it was over \$200,000,000. In January, 1942, it amounted to more than \$300,000,000; and for last July it was \$600,000,000.

As of September 11, about 35 per cent of lend-lease exports were going to the United Kingdom; 35 per cent to the U. S. S. R.; and 30 per cent to the Middle East, Australia and

other areas. Since the passage of the Act to September 11, lend-lease aid totalled \$5,129,000,000.

OVERCOMING THE LEAD

Our manufacturers had not started from scratch at the outbreak of war, but our enemies had a seven year lead on us. This we decided to try to overcome in a single year. According to the Treasury's estimate of October 1, it cost us, for the fiscal year beginning July 1, 75 billion dollars. Our total war expenditures in a century and a half of the life of the nation, including World War I, were only 64 billion dollars.

The government doesn't have anything like a 75-billion-dollar income. The Treasury hopes to raise 30 billion dollars by taxes. The goal for the sale of war bonds for the fiscal year is 12 billion dollars. That leaves 33 billion dollars more to be borrowed.

We have always been prodigal with our money. We're known the world over as "rich Americans." But now we were called upon to spend something more than money. We were called upon to spend lives and labor. We were asked to put an end to normal, peacetime existence.

We had to produce the goods of war faster than they had ever been produced before.

There were those who, when we embarked upon our great effort, said: "It'll be a cinch. We've got the plants—we can expand those, build others. We've got the materials. We've got the men."

Others said: "We have the plants, but we can't change from peacetime to wartime production over-night. Maybe we can't change at all. How are you going to make a tank with machinery intended for turning out refrigerators? How are you going to build an airplane on an assembly line designed for automobiles? We haven't got the tools, we haven't got the machines to make the dies, we haven't got..."

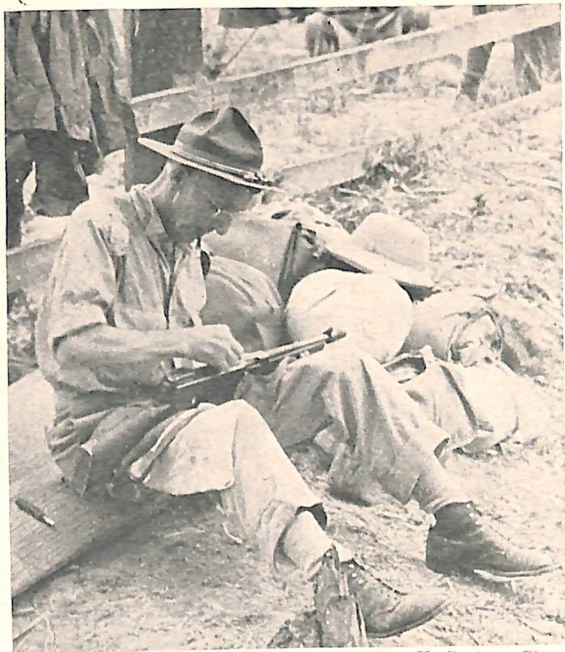
"Well," said the first group, "if this is so, we'll build new plants. We'll put up thousands of war plants, all over the country."

"Where are you going to get the materials?" the other group hooted. "We'll need all the copper, brass, steel, chemicals, all the lead, nickel, zinc we can get for weapons of war. If you take them to build factories, you won't have them for the goods to be made in the factories. Sure, this country is rich in raw materials—the richest in the world—but they're in the ground! They have to be dug out and processed, and this takes man-power. We'll need all the men we can get to fight the war and to manufacture the goods with which the war is to be fought. We can't waste men on mining copper and zinc for other men to build factories with in which more men must work to produce weapons of war which millions more men have to use against the enemy. This war is fought on the blitz pattern. We've got to do the best we can with what we've got—now."

It was a problem. And it was increased many-fold by the loss of the rubber and tin producing centers, captured by Japan.

Conversion was begun on a huge scale. Factories making agricultural implements were turned to the production of shells; automatic pencil plants began to make shell parts; plants manufacturing beverage containers were put to the manufacture of oxygen tanks for planes; cutlery factories started to make bayonets; egg poachers turned into percussion caps, and electric heaters into parachute flares. Even hair curlers became aircraft assembly clamps.

Conversion of the automobile factories to war factories is a dramatic page in the history of America's war of production. More than 3 million passenger cars were produced annually in the United States. In one day—



U. S. Army Photo

A fighting general is Lieutenant General Joseph W. Stilwell, commander of American Army Forces in China, Burma, and India, and a Chief of Staff to Generalissimo Chiang Kai-Shek.



Some of the ranking generals leading fighting forces around the world. Top row, left to right: General Douglas MacArthur, commanding general, United Nations Forces in the Southwest Pacific; Lieutenant General Dwight D. Eisenhower, supreme commander the Allied Forces in North Africa; Lieutenant General Mark W. Clark, deputy Supreme Commander in North Africa; Lieutenant General Delos C. Emmons, Army Commander in Hawaii; Lieutenant General Frank M. Andrews, commanding U. S. Forces in the Middle East. Middle row, Lieutenant General George H. Brett, commanding the Caribbean Defense Command; Lieutenant General George C. Kenney, commanding air forces in the Southwest Pacific; Lieutenant General Robert L. Eichelberger; Maj. Gen. Simon Bolivar Buckner, jr., commanding Army forces in Alaska; and Maj. Gen. Charles H. Bonesteel, commander in Iceland. Bottom row, Maj. Gen. Alexander M. Patch, commanding in New Caledonia; Maj. Gen. Lewis H. Brereton, Air Force commander in China, Burma, and India; Maj. Gen. George S. Patton, jr., commanding the task force which landed on the west coast of Africa; Maj. Gen. Charles W. Ryder, who under the British Lt. Gen. Anderson, landed in northeast Africa and completed the negotiations for the capitulation of Algiers; and Maj. Gen. Lloyd R. Fredendall, who commanded the force landing at Oran, French Morocco.

February 11, 1942—this was halted.

Machinery for making automobiles was ripped out of its foundations, and presses and lathes and drills for the production of tanks and airplanes were installed. Workmen stood by with the new units, waiting for other workmen to dismantle the old. Literally, not a minute was wasted. Within 60 days, the great, sprawling automobile factories which turned out pleasure cars like sausages or bottle-tops were ready to send tank and airplane parts down the assembly line.

By the end of February, 1942, 13 billion dollars in defense contracts had been awarded the automobile industry.

A meeting of automobile agency men in Waterbury, Conn., the day after manufacture stopped, was actually a wake for a deceased business. The livelihood of these men had been wiped out. They said: "We will go on as well as we can—we'll repair cars—we'll deal in second-hand cars, if they won't give us new ones to sell—we may even go into the bicycle business—"

Then bicycles went on the restricted list.

RED LIGHT FOR CIVILIAN GOODS

This halting of production of goods for civilians so that the plants might be turned to war use was a vital step in the war gear-up. Manufacturers of refrigerators—there were 3,670,000 produced from August 1, 1941, to

August 2, 1942—radios (the number of radios in use in the United States in 1941 was estimated at 57 million)—oil burners, electric fans, ranges, fishing tackle, golf clubs, lawn mowers, outboard motors, electric signs, toys—all were affected.

By curtailing or halting manufacture of such goods, America had at hand a vast machine for the production of the weapons of war. Besides these thousands of plants turned in whole or in part to war use, others were enlarged, new ones were built. An indication of the immensity of this production can be gotten by considering the figures on war contracts awarded.

Between June 1, 1940, through May 31, 1942, contracts awarded by the Army, Navy, Maritime Commission and the Treasury procurement division totaled \$66,630,000,000.

Of this amount \$45,323,000,000 was for supplies—guns, ammunition, aircraft. Military plant projects amounted to \$21,307,000,000. This represents the final cost of each construction project for which a contract has been awarded or a letter of intent issued, and includes land purchases, construction materials, and manufacturing and maintenance machinery.

The figure on contracts for aircraft production for this same period is \$17,063,998,000. For ships, it is \$7,760,300,000.

The second War Production Report, issued

August 22, 1942, by War Production Board Chairman Donald M. Nelson, showed that output of planes, guns, tanks, ships and other war equipment has been rising steadily since Pearl Harbor. Although progress is in some respects uneven—the present program calling for creation of balance between production items—the index of munitions production shows that war goods by October were being produced at a rate three-and-a-half times the rate of output the month before Pearl Harbor.

In June, 1939, only 224 military and commercial transport planes were built. In June, 1940, military plane output was 602. The following June, 1941, plane production amounted to 1,476.

In the first specific announcement of United States war production figures since Pearl Harbor, President Roosevelt declared on June 26, 1942, that factories in May had turned out nearly 4,000 airplanes, more than 1,500 tanks, nearly 2,000 artillery and anti-tank guns, and “well over” 100,000 machine guns.

The output of planes had increased 300 per cent in the past year, 733 per cent in the past two years, and 1,739 per cent in the past three years.

On September 26, WPB Chairman Nelson asserted that around 40 per cent of the entire production of the country was going for war. “By the middle of next year that proportion has got to be around 60 per cent,” he declared.

The manufacture of anti-aircraft guns presented complex problems, for these have never been produced in quantity in this country before the war, and each gun has a great number of parts with close tolerances. Yet three-and-a-half times as many anti-aircraft guns were produced in the first six months of 1942 as in all 1941.

In July, production of these weapons leaped upward, one class showing a gain of 64 per cent, another of 50 per cent—both exceeding schedules by a wide margin.

Production of medium tanks in July increased 26 per cent over June, and was considerably ahead of schedules.

The manufacture of ammunition and explosives in July was also in excess of goals set. As an indication of the tremendous strides in this industry, a single new plant in the spring of 1942 was producing more TNT than the entire explosives industry made in peacetime.

One of the best barometers of a war effort is the amount of machine tools manufactured. This increased 125 per cent from 1939 to 1940, and 72 per cent more from 1940 to 1941. The monthly average of machine tools manufactured in 1929, at the peak of prosperity, amounted to some \$15,000,000. In 1932 it was a shadow of this—\$1,800,000. In 1938, it was \$12,000,000. In 1940 it amounted to \$37,500,000, and in 1941 the monthly average reached \$64,600,000. The total output of machine tools during 1942 will be 350,000 units, with a value of \$1,400,000,000, almost double the production in 1941.

“PRIORITIES”

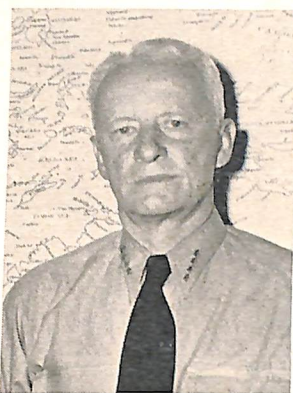
The word “priorities” came to be a familiar one not only to manufacturers and business men, but to storekeepers, housewives, even to kids knocking a golf-ball around a vacant lot—for materials used to make golf balls were on the priorities list. Among the goods listed

Message From CinC Pac.

by

Admiral Chester W. Nimitz, USN
Commander in Chief, Pacific Fleet

DURING the first year of the war in the Pacific the Fleet has completed three major tasks. First, the sea lanes across the greatest of oceans have been made safe for the movement of the increasing flood of men



and materials to the fighting fronts. Second, our task forces, assisted by the Army, have not only repulsed all major enemy thrusts—notably in the Coral Sea, at Midway and in the Solomons—but have progressively carried on the war of attrition, steadily whittling down the enemy's superior sea and air power. Finally, most of the ships caught by the enemy's surprise attack on Pearl Harbor are on their way back to the Fleet, better fighting ships than ever, and our citadel in Hawaii has been greatly strengthened.

The unselfish courage and devotion being displayed by all officers and men who have been fortunate to come to grips with the enemy is a brilliant new chapter in the glorious traditions of the Army, Navy and Marine Corps. Support given our operations by the Army and the Coast Guard is positive evidence of the unity of all American fighting forces.

as being needed almost entirely for war purposes were asbestos, rubber, tin, burlap, certain grades of hard and soft wood, (which meant drastic curtailment of building) silk, pig and hog bristles, (shaving and tooth brushes) quinine, shellac, and various metals and chemicals.

The system of priorities was designed to get these essential materials to the places where they would do the most good in the war effort. To obtain these materials, you had to have a priority rating, and these ratings were based on the importance of your product to the war. Regulations were strict; violators were penalized by punitive action against them, and by suspension orders which cut them off from all priority assistance and which forbade them to handle certain products.

Aluminum alloy constitutes better

than 60 per cent of the net weight of an airplane. In 1933, aluminum production amounted to 85,125,000 pounds. In 1938 it was 286,882,000. In 1941, the production rose to 615,000,000 pounds.

Other metals, used in war production, followed this increase. The consumption of magnesium, also vital in war production, increased from 4,819,617 pounds in 1938 to 12,823,633 pounds in 1940.

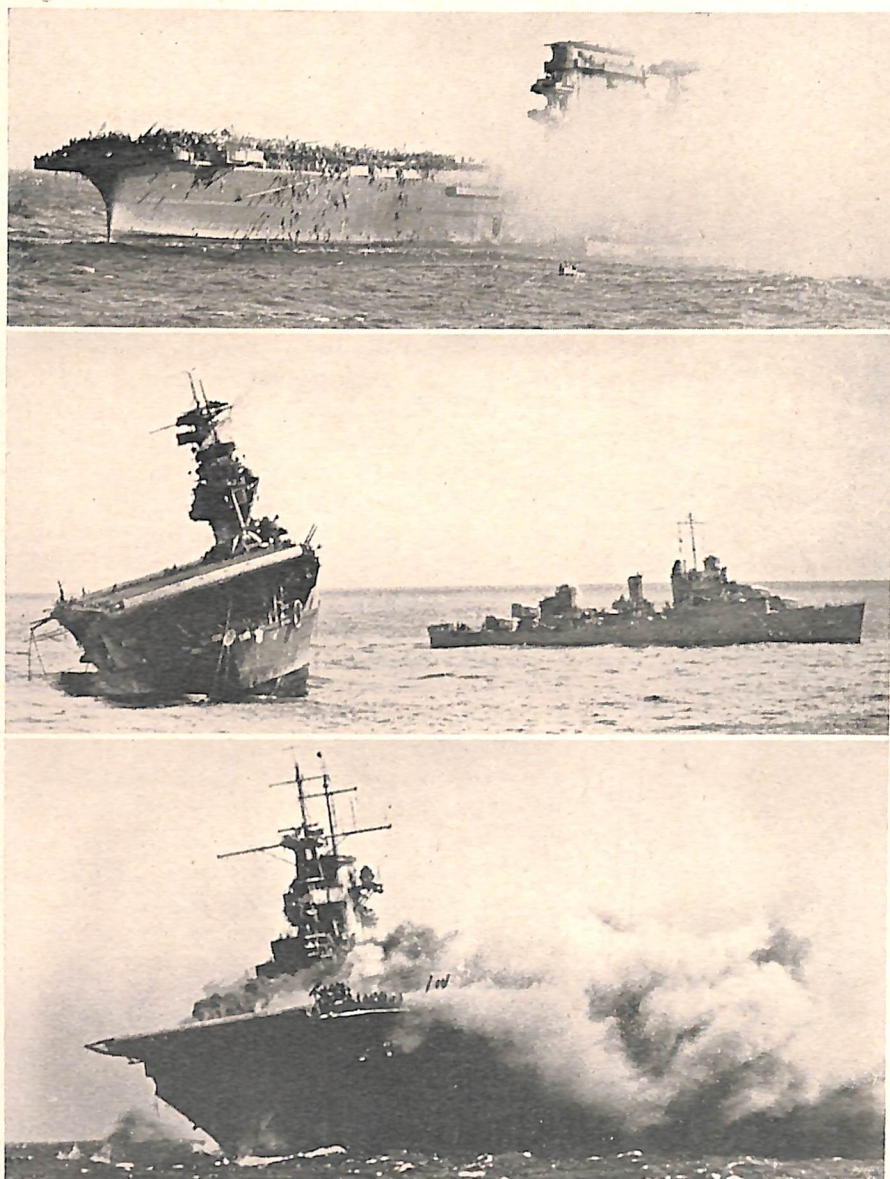
Metals which had become scarce through enemy capture of producing centers were being replaced by substitutes. The use of tin, for instance, was sharply cut, and “tin” containers which had no tin in them were developed. Lead base alloys reduced the amount of tin in solder from 40 per cent to 15 per cent; in babbitt metals (a tin alloy used around bearings to reduce friction) from 88 per cent to as low as one per cent.

In the summer of 1942 “scrap metal drives” were initiated in cities and towns throughout the United States. Scrap bins were erected on street corners, in front of city halls, on the Greens of New England, where householders deposited flattened tin cans, metal dish holders, aluminum cooking utensils, doorknobs, everything they could spare containing metal. There were “rubber drives,” “paper drives,” “rag drives.” Flat irons, extra gas stove grates, worn dresses, hose nozzles, were contributed to feed the war machine.

The increasing occupation of America with the war—which was not only a total war, but a “global” war—was evident in the disturbance of civilian life necessitated by the application of the priority system, in the rationing of certain articles, such as sugar and gasoline, the control of prices and particularly in the change in civilian life made by thousands of men going into the armed ser-



Commissioned Officers of the Marine Corps on Guadalcanal during the early days of the American offensive are shown above. This photograph was taken by a Marine Corps photographer on 11 Aug. 1942. Two of the officers are unidentified. In the picture are: First Row, Col. George R. Rowan, Col. Pedro A. Del Valle, Col. William C. James, Maj. Gen. Alexander A. Vandergrift, Col. Gerald C. Thomas, Col. Clifton B. Cates, Col. Randolph McC. Pate, Comdr. Warwick T. Brown, USN; Second Row, Col. William G. Whaling, Col. Frank B. Goettge, Col. LeRoy P. Hunt, Lt. Col. Frederick C. Biebusch, Lt. Col. Edwin A. Pollock, Lt. Col. Edmund J. Buckley, Lt. Col. Walter W. Burr, Lt. Col. Raymond P. Coffman; Third Row, Lt. Col. Francis R. Geraci, Lt. Col. William E. Maxwell, Col. Edward G. Hagen, Lt. Col. William N. McKelvy, Lt. Col. Julian N. Frisbee, Maj. Milton V. O'Connell, Unidentified, Maj. Forest C. Thompson; Fourth Row, Maj. Robert G. Ballance, Maj. Henry W. Buse, jr., Maj. James G. Frazer, Maj. Richard H. Crockett, Lt. Col. Lenard B. Cresswell, Maj. Robert O. Bowen, Lt. Col. John A. Bemis, Maj. Robert B. Luckey, Lt. Col. Samuel G. Taxis, Lt. Col. Eugene H. Price; Last Row, Lt. Col. Merrill B. Twining, Lt. Col. Walker A. Reaves, Lt. Col. John DeW. Macklin, Lt. Col. Hanley C. Waterman, Maj. Homer C. Murray.



Because of their devastating power, carriers have been the enemy's principal target in this war. Left are some of this type which have met honored deaths after taking telling tolls of the foe. Top: The USS Lexington, a casualty of the Battle of Coral Sea, shown as "abandon ship" was ordered. The destroyer at the right, shrouded in smoke, is taking off the sick and wounded. Note the men sliding down ropes into the water. Not a man was lost in abandoning ship. Center: USS Yorktown, her guns still pointed defiantly toward the sky, lists heavily to port after a savage battering by Japanese bombers and torpedo planes in the battle of Midway. Crippled, she was struck by two torpedoes from an enemy submarine on June 6, and capsized and sunk the following day. She had contributed gloriously to our victory in the Midway battle on June 4. Bottom: The USS Wasp, mortally wounded by three enemy submarine torpedoes. The 14,700-ton carrier, on escort duty near the Solomon Islands when she was attacked on September 15, was abandoned and later sunk by a U. S. destroyer.

U. S. Navy Photos

vices and into war plants.

On October 3, 1942, President Roosevelt named Associate Supreme Court Justice James F. Byrnes Director of Economic Stabilization, with wide authority to control civilian purchasing power, in the war on inflation. He ordered the immediate stabilization of farm prices, urban and rural rents, wages, and salaries in industry. A board was created to assist Byrnes in developing a policy covering not only prices, wages and rentals, but profits, rationing, government subsidies and related matters.

As another move in the battle against inflation Price Administrator Leon Henderson

placed 60-day emergency ceilings over most of the foods hitherto excluded from control, thus putting under OPA regulation 90 per cent of the food purchased by housewives. President Roosevelt stated:

"I am certain that from now on this substantial stabilization of the cost of living will assist greatly in bringing the war to a successful conclusion, will make the transition to peace conditions easier after the war and will receive the wholehearted approval of farmers, workers and housewives in every part of the country."

As war factories were built and enlarged, as plants manufacturing goods for civilian

use were converted into war factories with tremendously increased loads, men began leaving private industry for war jobs.

More and more men were being called to the armed forces. The training of men for war work was begun on a gigantic scale. Training centers were set up in many cities, where men—and women—could receive, without charge, instruction in some branch of machine work. Clerks began to learn how to operate a turning lathe. Clothing salesmen took instruction in automatic screw machines. Nurse maids, chauffeurs, interior decorators, artists, writers, florists, professional football players, took training for war jobs.

Skilled workmen, employed for years in the production of delicate instruments for peacetime uses, over-night were put on war projects. Peacetime plants were turned to the manufacture of parts for airplanes, propellers, radio-transmitter equipment, air training equipment, gyro horizon-indicators, altimeters, compasses.

The multiple-shift operation in war industries was put into general effect shortly after Pearl Harbor. War workers crowded buses, trains and cars at all hours of the day and night. A husband, leaving home at 6:30 a.m. for the factory, would get his own breakfast, for his wife was working the 11 p.m. to 7 a.m. shift, and wouldn't arrive home until 7:30. Plants operated seven days a week, holidays included.

Women were taking an increasing part in war industry. By the end of 1942, Labor Secretary Perkins estimated that 250,000 would be engaged in airplane factories, as against 2,000 the year previous. In his radio talk October 12, President Roosevelt said: "Within a year from now, there will probably be as many women as men working in our war production plants."

A move to aid in recruiting 5,000,000 more women for war production by the end of 1943 was taken September 5 by the War Manpower Commission, which appointed a women's policy committee consisting of 12 women leaders of labor, industry and public activity.

On September 14, 1942, the Brooklyn Navy Yard broke a 141-year tradition and hired women to work as mechanics.

In May, 1942, all records for employment in the United States were shattered. The Census Bureau announced that 51,600,000 men and women were employed.

President Roosevelt late in July directed

THE BATTLE OF MIDWAY

JAPANESE OCCUPATION FORCE

1 - Many Jap ships sighted by Navy patrol planes in morning of June 3

2 - Jap ships attacked by Flying Fortresses afternoon of June 3. Hits on cruisers and transports

3 - Navy patrol planes scored hits in night torpedo attack.

10 - Fleeing Jap ships attacked by Marine dive bombers and Flying Fortresses on morning and afternoon of June 5. Several hits on cruisers.

11 - Carrier dive bombers made repeated attacks on fleeing Jap ships. 2

12 - cruisers and 2 destroyers sunk.

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JAPANESE CARRIER FORCE

4 - Jap striking force consisting of 3 carriers, battle-ships, cruisers and destroyers. Air attack on Midway launched by this force early morning of June 4. Attacked by Army and Marine bombers and torpedo planes morning June 4.

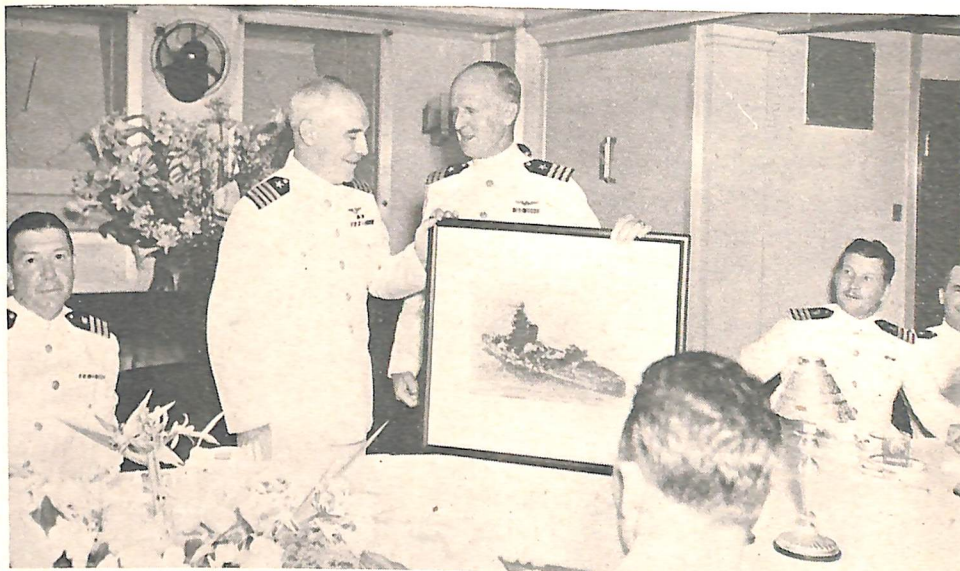
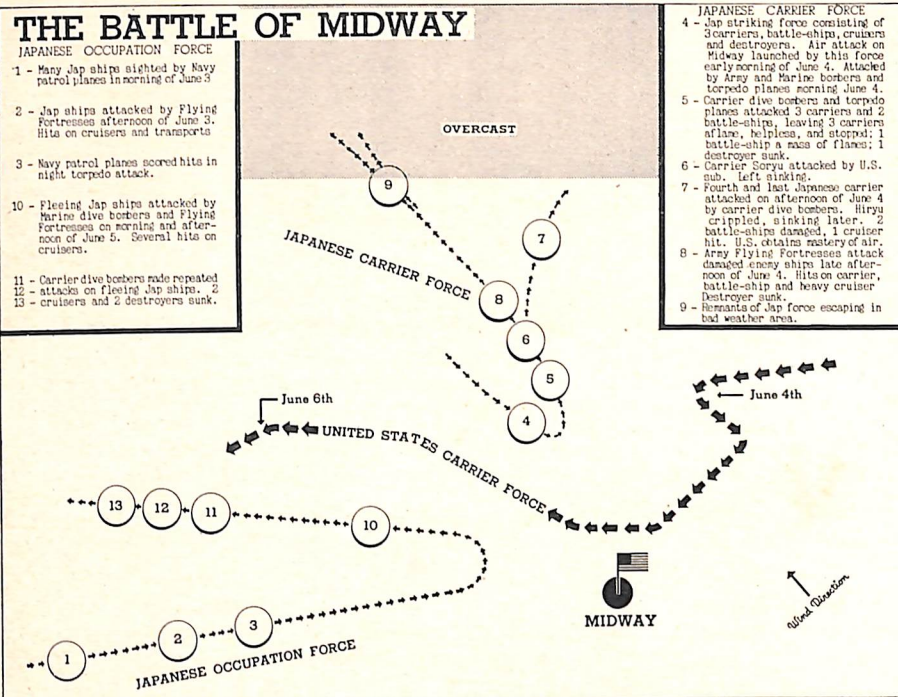
5 - Carrier dive bombers and torpedo planes attacked 3 carriers and 2 battle-ships, leaving 3 carriers afloat, helpless, and stopped; 1 battle-ship a mass of flames; 1 destroyer sunk.

6 - Carrier Soryu attacked by U.S. sub. left sinking.

7 - Fourth and last Japanese carrier attacked on afternoon of June 4 by carrier dive bombers. Hiryo crippled, sinking later. 2 battle-ships damaged, 1 cruiser hit. U.S. obtains mastery of air.

8 - Army Flying Fortresses attack damaged enemy ships late afternoon of June 4. Hits on carrier, battle-ship and heavy cruiser. Destroyer sunk.

9 - Remnants of Jap force escaping in bad weather area.



Happy scene on an unnamed U. S. Navy carrier. Capt. George D. Murray and Comdr. W. D. Boone with a framed picture of the Japanese heavy cruiser "Mogami" which attack groups from naval carriers sunk during the Battle of Midway Island.

U. S. Navy Photo

the drafting of a National War Service bill, under which the total manpower of the country, estimated at 60,000,000 labor units, would be mobilized in a total war effort.

SHIPS AND MORE SHIPS

In the building of ships, the United States has shown its full power. From September 1941 to September 1942 deliveries of completed merchant ships totalled 488, aggregating 5,450,000 deadweight tons. Of this, 327 are Liberty Ships, 49 are C-type cargo vessels, 51 are tankers, 5 are ore carriers and 46 are cargo ships for private use and for Britain.

Since January, 1941, American shipyard capacity for production of large ocean-going merchant ships has been more than tripled. Ship production of the nation is now at an all-time high, and is considerably greater than that of all other nations combined.

The earlier picture was not so encouraging. Rear Admiral Howard L. Vickery, vice-chairman of the Maritime Commission, on March 4 declared that during the first ten months of 1941, strikes in shipbuilding and ship repair industries resulted in the loss of over 5,000,000 man hours, or the equivalent of 10 Liberty-type ships. He added that the number of ships delivered in February was "unsatisfactory."

"If we do not bring some new life into the shipyards, I don't see where we are going to get the ships," he said bluntly.

Then, on March 10, Commander Robert C. Lee, executive vice-president of Moore-McCormack lines, in a speech to members of the Export Managers club in New York, declared that the United States did not have control of the seas, and would need 18,000,000 tons of ships, or the combined 1942-1943 production schedule, to carry on and supply successful offensives against Japan and Germany.

But by the summer of 1942, Liberty ships, the backbone of the nation's war shipping program, were being delivered in greater and greater numbers. Only 200 had been ordered in early 1941. This was increased seven times between late 1941 and early in 1942, with the emergency fleet being built in 17 new shipyards having 165 shipways. Production schedules had been shortened to three-and-a-half months, half the time originally allotted. During the first World War, the average production time for a cargo ship was 10 to 12 months.

National Maritime Day was held May 22. From one minute after midnight, when the first vessel marking the day was launched in the Tacoma plant of the Seattle-Tacoma Shipbuilding Corporation, until the next midnight, when the last launching took place in the same yard, 27 merchant ships went down the ways or were released from building basins.

"The fastest shipbuilding job in history" took place August 28, when the Kaiser shipyards at Richmond, California, sent a Liberty ship into the water 24 days after its keel had been laid.

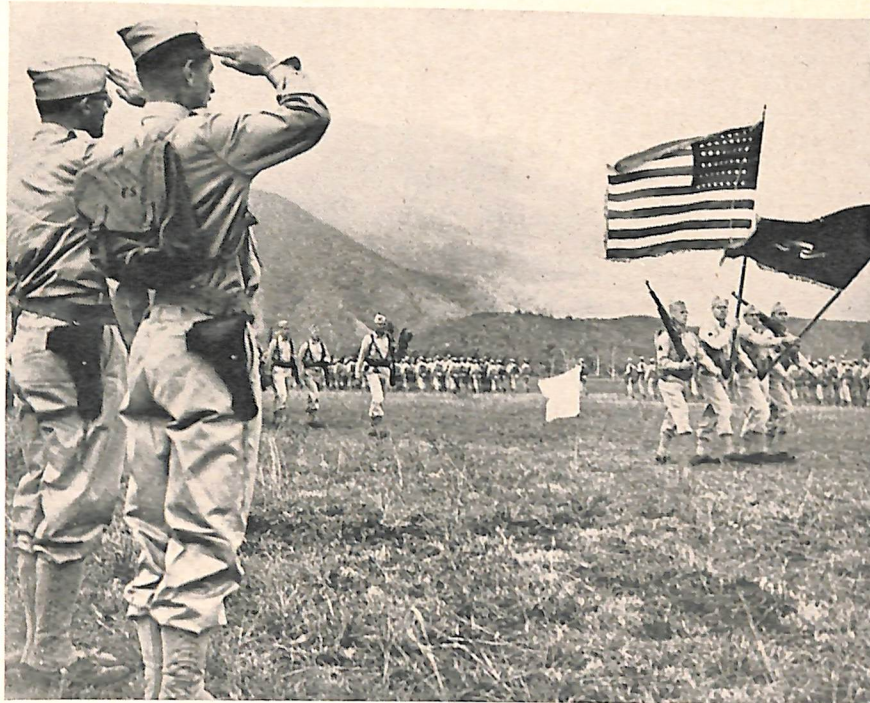
That record didn't last long. Less than a month later—September 23—Kaiser's Oregon Shipbuilding Company launched the Liberty ship Joseph N. Teal, 10,500 tons, just 10 days after the laying of the keel. The ship was 87 per cent completed, and steam was in her boilers.

The "fantastic"—according to the Axis—shipbuilding program had come true.

Scenes in the far reaches of the Pacific.

Right: Brig. Gen. E. B. Sebreem assistant to Maj. Gen. Alexander M. Patch, and Col. Bryant E. Moore, review troops in New Caledonia prior to their embarkation for duty in the Solomons.

U. S. Army Photo



Raising the National Emblem on Midway Island during the height of the battle of June 4, 5, and 6, 1942. This dramatic incident was not staged. Because word of the approach of Japanese forces came so early in the morning, the flag was raised while the battle was in progress.

U. S. Navy Photo



Japanese attack on Dutch Harbor, June 3 and 4, 1942. Marines on "alert." Note smoke from burning tanks in background, set afire by dive-bombing planes.

U. S. Navy Photo



TRANSPORTATION

In a nation the size of the United States, the problem of transporting men and materials within the country is as important as transporting them to battle areas outside the borders.

When we began to raise our Army and produce the goods of war we had the finest network of railroads in the world. It is on this network that we have to depend for much of the movement of men and materials. In 1941, our railroads set an all-time record—hauling 1,227,650,428 tons over 231,861 miles of Amer-

ican tracks, using one-third less cars than the rail industry had available in its previous peak year of 1929.

The year 1942 will far surpass this. Take oil as an example. November, 1941, a few weeks before Pearl Harbor, railroads were transporting 68,000 barrels a day. Now the figure has risen to more than 800,000 barrels daily. The reason, of course, is that submarines and diversion to other uses have reduced our tanker service just at a time when we need more oil than ever before in our history. Besides this increased oil burden, there are troops to be carried, shipments to be made



A photograph obtained by the U. S. Army from undisclosed sources, shows a Jap battery of 105-mm guns in action in China.

of tremendous quantities of steel castings, tank motors, sheet aluminum for planes, shells, cartridges, the materiel of war.

To perform this task, unessential travel and shipments had to be cut drastically. Thus far, however, there have been no severe restrictions on civilian use of railroads. Action has been confined to public appeals to travel only when absolutely necessary.

Trucks assist trains in carrying America's materials. Last year there were some 5,000,000 trucks in the United States, and one-fourth of all United States trucks are on farms. Estimates are that in 1942 they will travel more than 700,000,000 miles on rural roads and highways, carrying agricultural produce. Over 77 billion pounds of milk and cream will be hauled by farm trucks for 1,775,000 miles. Trucks will move 83,000,000 hogs; 23,000,000 sheep; 28,000,000 cattle for slaughter; 2,000,000,000 pounds of chicken and about 100,000,000 cases of eggs.

Private automobiles contribute to the war effort. Last year 77 per cent of all auto trips were for necessary purposes—to and from work, business, school, church. Only a small portion of the country's automobiles were used for unessential purposes, and with added restrictions in force, this will be reduced almost to nothing in 1943.

Troop movements during the first nine months of the war were three times that of the same period of the first World War. In the nine-month period beginning December 7, 1941, troop movements by rail totalled approximately 6,500,900, as opposed to 1,916,417 for the first nine months of the last war. In June, 1942, the Transportation Corps moved a million soldiers by rail. In June, 1917, the figure was 308,000.

NAVY BUILDING

The night of March 11, General MacArthur and his party of 20 left Bataan Peninsula in four torpedo boats, bound for an island in the Pacific where they were to board planes to complete the trip to Australia. They travelled by night and hid along the coast during daylight. They made the island safely, and three days later were flying toward the mainland.

MacArthur's safety depended upon the skill of the men operating those torpedo boats, and on the boats themselves. They were known as P-T boats, and were "the pride of the Navy and the scourge of the Japs." They were responsible for the sinking of enemy vessels, but their greatest achievement, said Lieut. John D. Buckeley, was "whisking General MacArthur and his party out of Bataan

under the noses of the Japs, battling through heavy seas at high speed every mile of the way, and not faltering once."

A big brother of those P-T's was launched at Bayonne, New Jersey, May 16, as part of the program of Navy expansion. It was the "fiercest, speediest small boat the Navy has ever produced," according to Rear Admiral Adolphus Andrews. And when it was launched, submarines, destroyers, warships of all types, were being produced not only on schedule, but, said Representative Vinson, chairman of the Naval Affairs committee, "ahead of schedule."

The House Naval Committee July 23 reported a 360 per cent increase in naval ship building in the past year. On June 30, a total of 3,230 ships in the classification of combatant, auxiliary, patrol and mine craft had been delivered, as against 697 the year previous. Sixty combatant vessels were actually completed, when it had been expected that only 48 would be finished.

Ten auxiliaries were completed, the report showed, with only nine predicted; 143 patrol craft, with 133 expected. Only construction of mine and district craft fell short of the goal, with 280 completed, of a schedule of 394.

So sharp was the speed-up in ship construction, that the time for completing a battleship had been cut from an average of 42 months to 36 months; aircraft carriers from 45 months to 17.3; heavy cruisers from 36.4 to 22.7; light cruisers, 33.8 to 22.3; destroyers, 27.2 to 11.6, and submarines from 21.2 to 11.5.

Records for ship launchings were broken every week. No sooner would a navy yard proudly announce that a destroyer was launched in 13 weeks, than another navy yard

would slide one down the ways in 12 weeks. The impossible had become the commonplace.

Navy yards arose from barren flats and beaches. Two shipbuilding corporations in Portland, Maine, employed only six persons in 1940. By August, 1942, they were employing more than 26,000.

The mightiest battleship ever built, the U. S. S. Iowa, slid down the Navy Yard in Brooklyn August 27, seven months ahead of schedule. She was the first of six 45,000 ton battleships under construction to reach the launching stage. Her keel was laid June 27, 1940.

The new aircraft carrier Lexington was launched at the Bethlehem Steel Corporation's plant at Quincy, Massachusetts, more than a year ahead of schedule—and less than five months from the sinking of her namesake in the battle of the Coral Sea.

The greatest of the nation's new naval building programs was signed by the president July 9. It authorizes 1,900,000 more tons of fighting ships, distributed as follows: 500,000 tons of aircraft carriers, 500,000 tons of heavy and light cruisers, and 900,000 tons of destroyers and escort vessels. Also provided for are 800 smaller patrol, mine-laying and tending vessels.

THE NEW ARMY

The creation of the new Army of the United States was begun October 16, 1940, when some sixteen million men between 21 and 36 registered for the first peacetime draft in the history of the country.

Since then, about 4½ million have been inducted. These millions have been trained, out-fitted, and many of them sent to lands which the majority had heard of previously only through newsreels, adventure stories, or in the geography books of their school years. When you hear a mother say: "I'm fixing a Christmas box for my boy in New Guinea," you realize what a global war means.

To train the millions, camps were erected almost overnight. Problems rising from the concentration of great numbers of men in sections previously of a few hundred population



Mr. Harry L. Hopkins, Special Assistant to the President who has performed many important missions abroad, particularly in connection with Lend-Lease, a member of the War Production Board, and chairman of the Munitions Assignments Board, United States and Great Britain.

Harris & Ewing Photo



U. S. Marine Corps Photo

Maj. James Roosevelt, right, and 1st Lt. M. C. Plumley, center, pore over maps, with Lt. Col. Evans F. Carlson, commanding officer of the Marine battalion which made the August 17 raid on the Japs Makin Island in the Gilbert group. Major Roosevelt was second in command to Colonel Carlson.

were met and solved. The United Service Organizations came into being, to provide the men with recreation in their off-duty hours. Certain camps and forts became training centers for specialized branches of warfare, such as the tank-destroyer training center at Camp Hood, Texas, where more than 1,800 buildings were constructed, scores of miles of roads were built out of Texas limestone, and ranges were made from dusty stretches of ranch land where anything from a .45 caliber Colt to a 75-mm. antitank gun can be fired. Even before the camp was completed, men were being taught tank-busting.

The new Army was mechanized. A correspondent at the opening of the 1942 war maneuvers in North Carolina said that "the troops are using tactics which make last year's maneuvers appear as outdated, in many respects, as the battles of the Civil war." On the ground, over water, in the air, the men were trained for fighting in desert, jungle, swamp and mountains. High above wastelands parachute troops dove from great, multi-motored planes.

The United States Rangers, who joined Canadian, British, and Fighting French in Commando raids on Hitler's Europe, were trained in England. They practiced beach-landings while rifle and machine-gun bullets cracked the paddles of the men in the boats. They rowed canvas boats across water while tracer bullets from a British Bren gun came within an arm's-length of them. Their maneuvers were executed over terrain where land mines and grenades splattered them with mud and water.

The Army, in its need for accommodations and training grounds for its millions, took over hotels, beach clubs, fashionable watering places, even a motion picture studio in Astoria, Long Island, where once Rudolph Valentino made film love to Nita Naldi. This studio became the Photographic Center of the Signal Corps, U. S. A.

Hundreds of thousands of young men were taken from civilian life and funneled into the war machine, to emerge hardened, confident soldiers. No sooner was one unit trained and brought up to tactical strength than a section of it was split off to form the nucleus of a new unit, while the rest of the men were assigned to duty on the fighting front. By keeping a portion of the experienced unit as a basis for a new, untrained unit, there is a constant outpouring of trained troops, in almost arithmetical progression.

On September 11, Lieutenant General Lesley J. McNair, commander of the Army ground forces, said that the number of divisions in existence or in process of mobilization was more than double the total at the beginning of the year.

Formations of women's auxiliary corps of both the Army and the Navy were well under way before the fall of this year. Known as the WAACs—Women's Army Auxiliary Corps—and the WAVES—Women Appointed for Volunteer Emergency Service—the organizations are an important part of the United States forces. By taking over the jobs of soldiers at training centers and military posts, the WAACs and the WAVES release men for combat duty, swelling the ranks of our fighters.

Training centers for the organizations were established in colleges and at camps. Re-

cruiting for 10,000 women began in mid-September. A number of the women will be sent on foreign service, where they will replace men on non-combat jobs.

The first officer candidate class of WAACs, 436, took the oath of office August 29 at Fort Des Moines.

Women have been taking part in our civil defense system, also. They are members of the Civil Air Patrol; they are air raid wardens; they promote salvage campaigns, war bond sales, are on defense housing committees, rationing boards, they have their own Motor Corps.

Women are fighting this war as well as men.

Commanding Generals of the Four Armies. Upper left, Lieutenant General Hugh A. Drum, USA, First Army and Eastern Defense Command. Upper right, Lieutenant General Ben Lear, USA, Second Army. Lower left, Lieutenant General Walter Krueger, USA, Third Army. Lower right, Lieutenant General John L. DeWitt, USA, Fourth Army, and Western Defense Command.

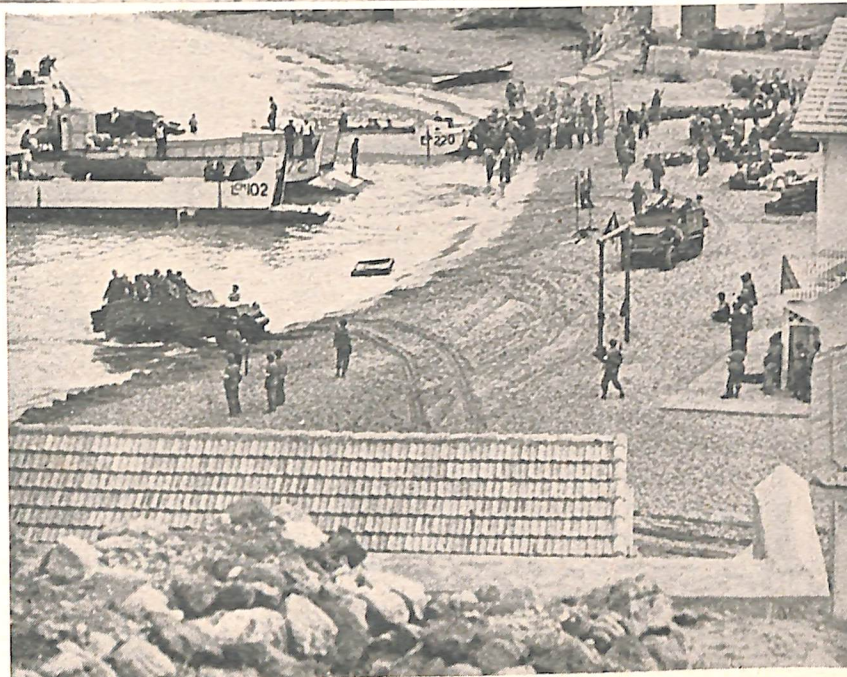
U. S. Army Photos



Upper: A small part of the huge Anglo-American convoy plows through a rough sea carrying troops, equipment, and supplies for the occupation of North Africa.

Right: A half-track scout car emerges from the water and grinds up this beach west of Oran during the American occupation of Algeria. Landing barges have also brought equipment for American paratroopers and Rangers.

Press Association Photo



The Services of Supply, U. S. Army

by

Lieutenant General Brehon Somervell

Commanding General, Services of Supply

ON June 13th the War Department announced arrival in Ireland of "the greatest American convoy which ever crossed the Atlantic." How many men, how much materiel it carried naturally are military secrets. No secret, however, is the fact that for every man who landed in Ireland, ten tons of equipment went ashore. That is the ratio of manpower to supplies on our overseas fronts.

Nor is it a secret that this convoy, fourth huge trans-Atlantic movement of the war, made its journey "without incident." The fact that our transports have carried troops and supplies to the four quarters of the globe with practically no losses should encourage us and dismay our enemies.

There may be those who say we have been lucky. That is not the truth. The fact is, before a man set foot aboard ship we were thoroughly prepared. We will continue to be prepared. There will be some losses, of course. But thanks to thorough preparations, to foresight and long-distance planning, they will be very small.

The Services of Supply, charged with procurement, distribution, storage, maintenance and transportation of supplies and the movement, housing, health and equipping of troops, faces the largest, the most important and the most difficult job of organization in history.

The fact that we are at war on five continents brings endless complications. In addition to the immense distances involved there is the matter of climate, and its effect on the health of troops, on their clothing and their food and their housing, on mobile equipment and on stores.

Obviously foods suited to stations in the Arctic are not suited to the Caribbean or to Africa. We must experiment, must test certain foodstuffs for their ability to withstand extremes of cold without losing vital properties. And we must also experiment with other types of food while we seek suitable diet for Equatorial stations.

We at last after long research developed a butter that will not melt and not become rancid in temperatures up to 120°. We have found types of powdered milk that retain all their necessary elements even after they have been frozen or have been in storage many months.

The variety of uniforms we must provide is infinite. In other wars, fought in restricted areas, we usually have been able to supply two kinds of uniform, for summer and for winter. But now simultaneously we must produce and distribute many thousands of uniforms especially designed for desert fighting, often on the same day we are supplying many thousands for men in Iceland, along the Arctic coast, and in Alaska. We must have ready

at the proper moment, in the proper amount, uniforms for tank troops, parachute troops, infantry, flame throwers, ski patrols.

Time was when a truck was a truck, a tank



a tank, and lubricating oil was lubricating oil. Now we must design and procure trucks for the African desert, for south sea islands, for Alaska's foggy coasts, for mountainous terrain, for the plains of Europe, for wintry Iceland.

We must supply the proper oil and gasoline for Libyan oasis stations, other oil and gasoline for the far north. We must build tanks and guns and trucks that will withstand sandstorms, aridity, snow, fog, and the northern winter.

We must prepare housing facilities on all the continents for our men in training, facilities suited to the peculiarities of climate and to the type of troops who will occupy them. We must use those materials most easily obtainable, that will require least transportation, least time for construction. This we have succeeded in doing in these first stages of the war. Our troops, no matter where they are, are the best housed in the world.

A primary duty of the Services of Supply is to bring together the right number of the

right troops properly equipped with everything they will need . . . and nothing they do not need . . . at the exact place they can board ship for transport to the battle fronts. This requires split-second timing. It requires the integration of hundreds of widely scattered authorities. It requires organization, attention to the minutest details, cooperation to the Nth degree.

This we are accomplishing, thanks to the splendid spirit and the skill of the division and the services staffs of the S. O. S.

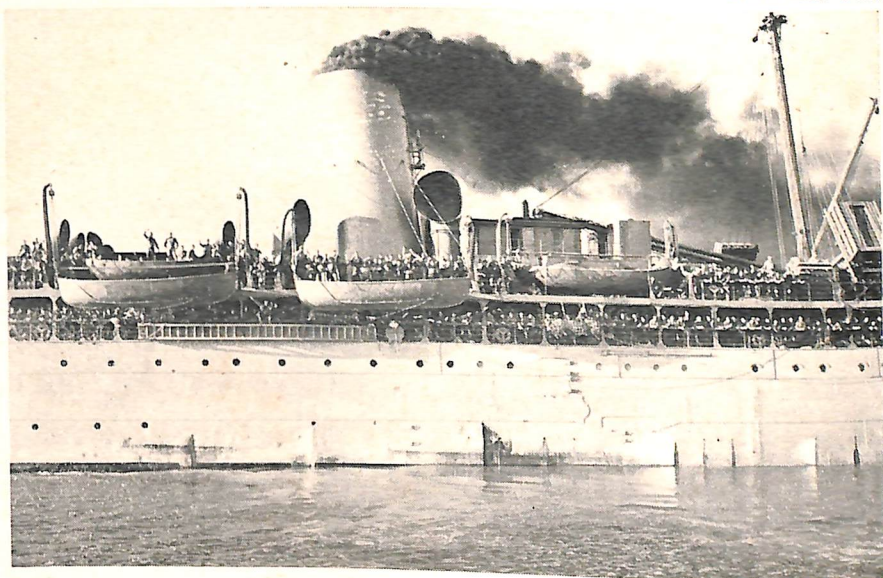
Because shipping is one of our principal bottlenecks at this moment we have had to utilize each ship to the utter limit of its capacity. This means not only quick turn-arounds at American ports but the use of every inch of cargo and passenger space possible. Six months ago ships usually were counted adequately loaded if fifty per cent of the holds were filled with goods. Today we fill nearly ninety per cent of that space. We fill it fast, unload it fast.

The Services of Supply must foresee not only the needs of the army and of the armies of our allies, but it must keep constantly informed on the state of production of war supplies and the state of the sources of raw materials. For there must be no interruption, no slowdown, in the journey of iron ore from the mineshaft, to the steelmills, to the munitions plants, to the base port, to the theatre of operations overseas. In that journey it will have been converted from raw material into a tank, a truck, a shell. This is true of everything the army uses, everything it wears and eats, everything on which it travels, in which it lives, with which it fights.

That is the business of the S. O. S., the biggest big business of all time.

Transports laden with men, supplies and equipment carry American might to the warring corners of the globe.

U. S. Army Photo





Training the Army Ground Forces for Combat

by

Lieutenant General Lesley J. McNair

Commanding General, Army Ground Forces

UNDER the recent reorganization, the War Department commands directly the overseas theaters and the four defense commands into which continental United States is organized to combat external attacks. All military forces and establishments in this country, other than the defense commands, are organized into three coordinate commands—Army Ground Forces, Army Air Forces, and Services of Supply. While these three commands also are directly under the War Department, it is contemplated that they exercise all possible latitude within their respective spheres in order to relieve the War Department to the maximum.

Briefly, the mission of the Army Ground Forces is to create units and train them so that they are fit to fight. The units then are turned over for employment in theaters of operations. The Ground Forces consist generally of a headquarters and a number of subordinate units or commands.

There are two armies in the Ground Forces—the Second Army, Lieutenant General Lear, with headquarters at Memphis, and the Third Army, Lieutenant General Krueger, with headquarters at San Antonio. Each army has several corps, each corps a number of divisions. In addition to corps and divisions, both armies have a great many smaller separate units, from brigades to companies.

The First and Fourth Armies garrison the Eastern and Western Defense Commands, respectively, and thus are directly under the War Department.

In addition to the armies, there are a number of separate corps directly under Headquarters, Army Ground Forces, in Washington.

The number of infantry divisions in training is increasing rather rapidly, although troops are being sent overseas from time to time. Shipping, not training, is the bottleneck of our effort overseas, and it is the intention



to maintain training well ahead of shipping.

A spectacular and powerful component of the Ground Forces is the Armored Force, commanded by Lieutenant General Devers, with headquarters at Fort Knox. The Armored Force now is well and soundly established, and is expanding smoothly and effectively. The proportion of armored divisions as compared with infantry divisions is a moot question. The latest information of the Ger-

man army places their total of divisions at 300, including 25 armored and 10 motorized infantry divisions, the others being almost wholly foot infantry divisions.

While the tank unquestionably is a formidable military weapon, the means of defense against tanks are developing rapidly. Whatever the future may hold for the armored forces, it seems reasonably certain that tanks hereafter will encounter no such push-over as in the Battle of France in 1940.

While many hold that the most effective antidote of tanks is more tanks, antitank guns have proved their worth and are considered one of our principal answers to the devastating power of tanks. In order that antitank strength may be developed and trained on an adequate scale, the Tank Destroyer Center has been established near Temple, Texas, under Major General Bruce. It is schooling individuals, and organizing and training tank destroyer units.

The Antiaircraft Command is another powerful component of the Ground Forces. It is commanded by Major General Green, with headquarters at Richmond, Virginia. It comprises some 11 camps, distributed from Massachusetts to Southern California, and includes antiaircraft replacement training centers, schools, and training centers for producing finished antiaircraft units.

The Airborne Command, under Brigadier General E. G. Chapman, jr., is a new component, established to expedite the development of parachute and airborne troops, involving both airplanes and gliders. As the production of airplanes makes more equipment available, this training will be expanded

(Continued on page 179)

The Merchant Marine in War and Peace

by

Rear Admiral Emory S. Land (CC), U. S. N.-Ret.

Chairman, United States Maritime Commission and War Shipping Administrator

OUR Army and Navy in the front lines, and all of the rest of America back of them, are engaged today in the bitterest struggle for individual freedom in the history of mankind. Upon the outcome of the current conflict will depend not only the future of our children, but the future of the generations to follow. There can and will be but one conclusion—complete victory for the United Nations forces.

We cannot dodge issues. Above all we must face reality and hard cold facts. The victory for which every true American is bidding will not be bought cheaply. However, the price to be paid, regardless of how high, is little in comparison to the maintenance of American Liberty.

The safeguarding of our freedom cannot help but depend to a large degree on the ability of our government to move vital war cargoes and troops to the many points along the United Nations' fighting fronts.

Obviously, the efficiency and speed with which this transportation of guns, tanks, planes, oil and men is accomplished, must depend primarily upon our Merchant Marine. This has not been, and is not now, an easy task, and its successful prosecution can only be carried through by the most carefully planned use of available tonnage and through the efforts of the men in the shipyards, who are engaged in carrying out the most gigantic shipbuilding program in the history of the world.

The demand of our President for "ships, more ships and still more ships," has not gone unheeded. American shipbuilding has now reached a capacity which has never before been deemed possible. It is being stepped up and expanded constantly, so that for this year and next the schedules call for delivery into service of approximately 2,300 big merchant ships. Thus will be created the greatest merchant fleet in world history, the operations of which are being guided by a centralized authority, the War Shipping Administration.

Present construction contracts call for the delivery into service of 800 ships this year and 1,500 by the end of 1943. Delivery of one ship a day was begun in February, by late May our shipyards reached two-a-day, and in September three-

a-day. Approximately 1,500 of these vessels now under contract are of the emergency or Liberty ship type. The remainder are C-types and tankers of various Maritime Commission standard and special designs.

Liberty ships are being constructed pri-



marily for wartime emergency use, while the standard designs are intended as replacements for outmoded and obsolete vessels already in service—to be the nucleus for America's post-war merchant marine.

Originally, the peace-time program, begun in 1937, called for 50 ships a year, or a total of five hundred over a ten-year period. In 1939 this was expanded to 100 ships a year; in 1940 to 200 and in 1941 to 400. Up to the present time these schedules, although vastly expanded over the original program, have been maintained.

At the same time schedules were expedited from the original contemplated six months for production of Liberty ships to 105 days or approximately three and one-half months from keel-laying to delivery into service.

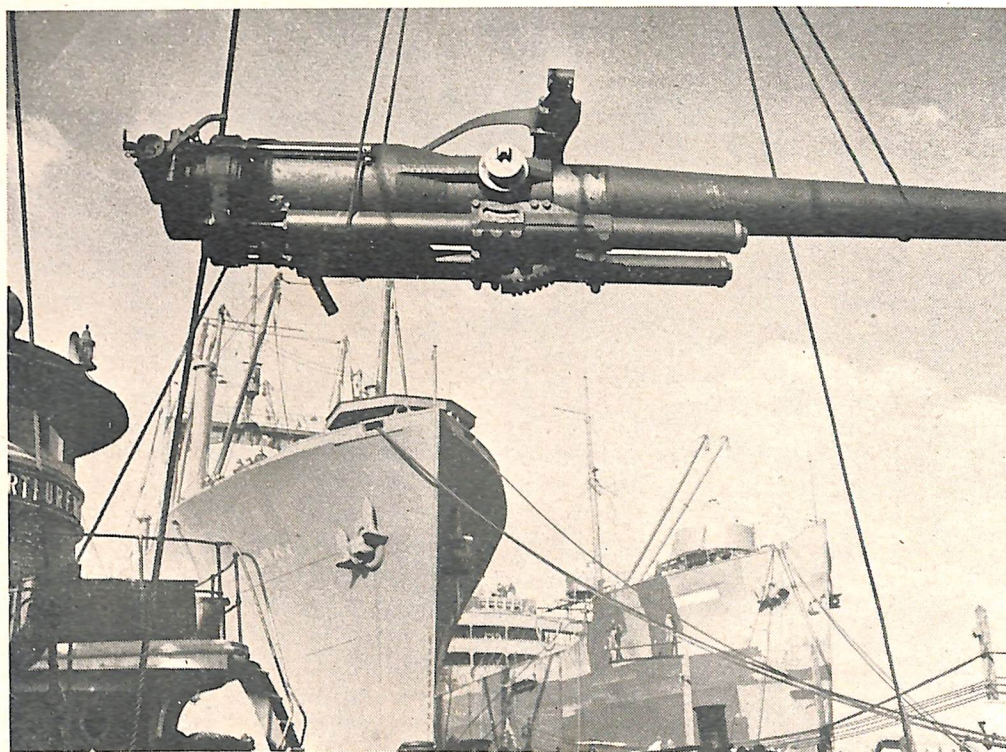
In comparison with the year 1937, when there were but 10 yards with 46 ways capable of producing ocean-going merchant ships, there are today more than 60 yards building merchant craft of all types, and approximately 300 ways for the large type ocean-going vessels. Employed in the Nation's shipbuilding and repair yards are more than three-quarters of a million workers as compared to the less than 100,000 normally employed during peace time.

Soon after the inauguration of the program it became evident there was going to be a shortage of shipbuilding brains. The first impulse was, of course, to spread, as far as possible, the skilled labor which was then available. It was also recognized that if this skilled labor were spread too thin, its intended purpose of allocation would in time defeat itself. Therefore in every shipyard under Maritime Commission authorization, training schools have been set up and are turning out thousands of trained shipyard workers each month.

At the same time, an estimated million workers in industrial plants are producing materials and parts for ships, so that when the accelerated shipbuilding program reaches its peak at the end of 1943 there will be approximately two million workers engaged in our nation's shipbuilding and repair yards and in fabricating plants.

Meanwhile, it must be borne in mind that this vast production machine can and will continue to build ships at the rate of 15,000,000 to 18,000,000 deadweight tons a year so long as may be necessary after 1942 to bring a successful termination to the present conflict. Most of this great production ma-

(Continued on page 178)



Arming Merchant Vessels at an Atlantic Port.

U. S. Navy Photo

Navy Shipbuilding and Industry

by

Rear Admiral A. H. Van Keuren, U. S. N.*

WHEN the present emergency shipbuilding program was first gotten under way with the enactment of the 11% Expansion Act of 14 June 1940, and the 70% Expansion Act of 19 July 1940, the problem immediately confronting the Bureau of Ships was to place the newly authorized tonnage under contract with the shipbuilders in the shortest possible time. In June, 1940, apart from the 8 Navy Yards where ship construction was in progress, there were only 13 private shipyards actually engaged in naval shipbuilding. In anticipation of the expansion program, surveys had been made of the nation's existing shipbuilding facilities and these were the first to be allocated contract awards. The next step was to ascertain which of the existing yards could be expanded to the maximum advantage and with a minimum of delay, and with the award of contracts for carrying these expansion projects into effect, there were simultaneously awarded contracts for new ship construction in quantities equivalent to the yards' expanded capacities. There remained a large amount of authorized tonnage yet to be placed and to this end contracts were let for two wholly new shipyards, one at Orange, Texas, and the other at Seattle, Washington, with a third yard—that of Cramp's at Philadelphia—being given a major rehabilitation.

The hump of the enormous paper work job of getting these contracts placed was surmounted in the summer of 1940 when, in less than the three months period from June to September, ship construction awards were made totalling more than four billion dollars.

Although the volume of new ship construction authorized by the 11% and 70% Expansion Acts appeared to have filled the shipbuilding bottle to the point of overflow, places

had to be found or made for the additional naval vessel construction authorized by Congress in the Acts of 31 January 1941 (400 small boats), 24 May 1941 (550,000 tons of auxiliary vessels), 21 November 1941 (400

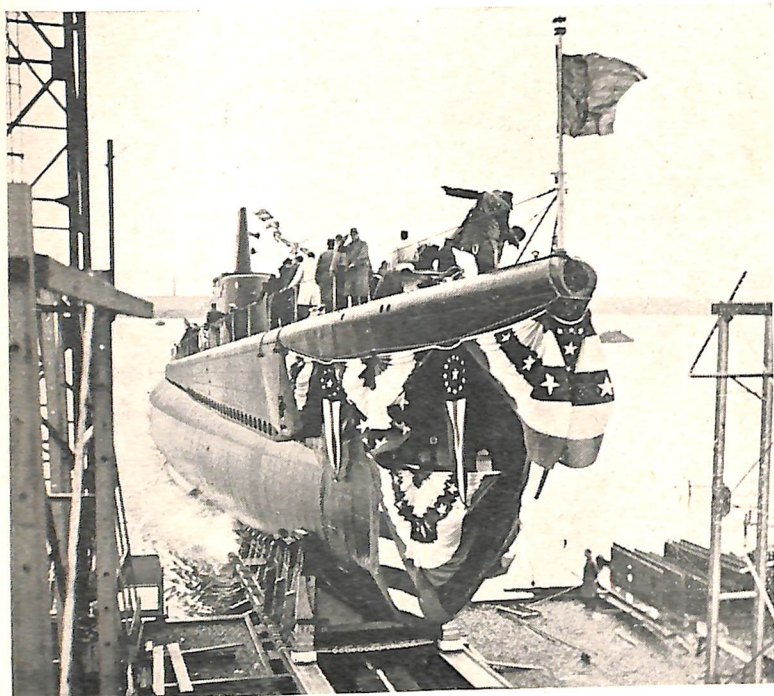


miscellaneous light-draft vessels), 17 December 1941 (800,000 additional tons of auxiliary vessels and 400 additional miscellaneous mine craft and patrol craft), 23 December 1941 (150,000 tons of combatant ships), 6 February 1942 (1799 minor combatant, auxiliary and patrol vessels), and 13 May 1942 (200,000 tons of combatant

ships). In addition to these, two major size authorizations have recently been enacted by Congress, one (Pub. No. 666—77th Cong., 2d Sess.) providing for 1,900,000 tons of combatant vessels, and the other (Pub. No. 665—77th Cong., 2d Sess.) providing for 1,200,000 tons of auxiliary vessels. However, this new construction, which, when completed, will give the Navy its much discussed five-ocean fleet, is to be undertaken only as ways are released by the completion of the work already in progress.

Geographically speaking, there is practically no limit to the extent to which the shipbuilding industry of this country may be expanded. Every effort has been made to spread the present program over the widest possible area: not only are the Atlantic, Pacific and Gulf Coast-lines studded with ship construction and repair yards, but naval vessels are building on all five of the Great Lakes, and up and down the Mississippi, and its principal tributaries, the Ohio and the Missouri. Even so land-locked a locality as Denver, Colorado, is engaged in the pre-fabrication of parts for naval vessels building at the Mare Island Navy Yard in San Francisco.

Unfortunately, however, the extent to
(Continued on page 170)

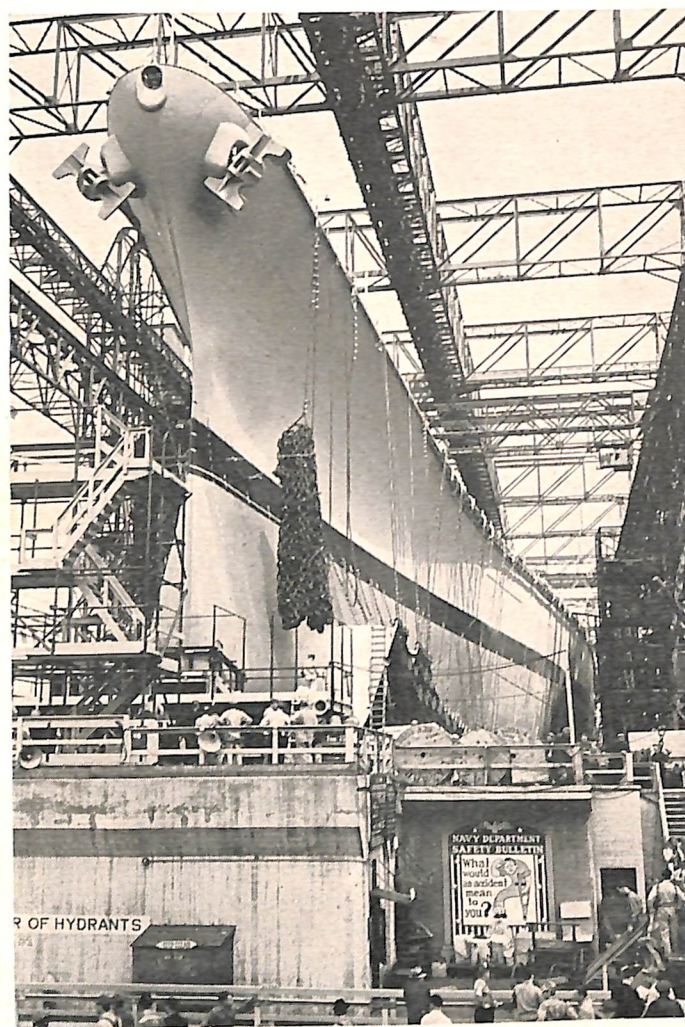


*This article was prepared by Admiral van Keuren while he was Chief of the Bureau of Ships, just prior to his reassignment to be Director of the United States Naval Research Laboratory at Anacostia, D. C.

←
Launching of the U. S. Submarine Gunnel, at the Electric Boat Company's yards, Groton, Conn.

→
A forward view of the bow before the formal launching of the USS Iowa, 45,000 ton battleship. (The drag chains hanging by cables are dropped into the water at the time of launching in order to slow the ship down as she slides into the main channel of the launching basin.)

U. S. Navy Photos



All-Out Mobilization for All-Out War

by

Paul V. McNutt

Chairman, War Manpower Commission

AS the Nation speeds up its industrial and military mobilization to meet the demands of all-out war, I should like to impress upon you a sense of the magnitude and urgency of the manpower problem which confronts us.

Between now and the end of next year we must add about 4 million workers in our war industries and probably an equal number to the armed forces.

In order to replace workers withdrawn by the armed forces and to make the necessary shifts from nonessential to essential work, we shall have to place about 18 million workers in new jobs. About 11 million workers must be trained, mainly for semi-skilled production jobs, between now and the end of 1943.

At this moment there are serious general labor shortages in 35 major centers of war production, including Los Angeles, Seattle, Detroit, Buffalo, and Philadelphia. Each of these shortages must be met. Labor shortages in copper mining and smelting have already cost several thousand tons of this valuable war material and shortages exist also in other non-ferrous metal mining industries and in logging.

Meanwhile, needless migration goes on and labor pirating remains unchecked. In some areas acute shortages of housing and transportation facilities are preventing an adequate flow of labor into critical war plants. In other areas artificial labor shortages exist because of discrimination against women workers and members of minority groups. Workers already employed in war plants are frequently utilized at much less than their full capacity. All of these problems must be met wherever they arise.

The latest estimate of the Bureau of Labor Statistics and the Bureau of Employment Security indicates that 62.5 million people will be employed in industry and the armed forces by December, 1943.

It is not safe to count heavily on labor requirements geared to our present industrial capacity when it may become necessary through forces of circumstances to stretch our capacity farther than now seems possible. In manpower planning it is the part of caution to set the sights high. We should face the possibility that we may need a labor force of 65 million or more by the end of 1943.

It is misleading to make a simple addition of the numbers in these various groups and to label the result "the labor reserve." Such a total merely states that there are so many million people in the population with characteristics which do not bar them for gainful employment. The important question is how many of these people can actually be brought into employment. The answer depends on the kinds of inducements offered and the effi-

ciency of the recruitment and placement efforts.

Our labor reserves are widely dispersed, while the demand for labor in war industry is highly concentrated. This difficulty can be met only partially by greater spreading of war contracts, because production facilities themselves are highly concentrated.

While conditions differ from one area to the next, certain common elements are found in almost all the shortage areas. There has



been little effort to see that workers already employed are efficiently utilized. Some plants are seriously over-manned and hoarding skilled workers, while nearby plants are in urgent need of labor. In spite of persistent efforts by the War Manpower Commission, there is still widespread discrimination against Negroes and minority groups. Failure to use local labor reserves has necessitated heavy in-migration, which in turn has caused acute housing and transportation difficulties. The prospect of many thousand more in-migrants during the next year creates an urgent need for additional housing construction. Labor turnover is high and rising in most areas, due partly to unsatisfactory living conditions.

In localities such as Seattle and Detroit, where labor shortages are serious and housing facilities are inadequate, special efforts are now being made to recruit women not normally in the working force. Efforts are also being made to facilitate the entrance of women into the labor market by developing an intensive program for the day care of young children.

The placement activities of the Employ-

ment Service are being concentrated more and more directly on jobs related to the war program. Workers with scarce skills not already engaged in war production are being called to the local employment office for interviews. This effort to persuade skilled workers to transfer voluntarily to more important positions has thus far been successful in only about 10% of the cases. The main reason for unwillingness to transfer has been loss of seniority and other accumulated rights in the worker's present job. This objection must be met if transference of labor is to be carried out on a large scale.

Increasing emphasis is being placed on the extension and development of training programs. More than 3 million workers have been trained in vocational schools alone since June, 1940, and the pace is still increasing. Training is being made increasingly available to women, Negroes, and national minority groups.

While manpower requirements stem from the requirements of the war production program, the relation is not so simple and direct as in the case of raw materials. A given production schedule does not indicate the exact number of workers required, because labor productivity varies greatly from plant to plant and may change rapidly over the course of time. Even more important, a given production schedule does not determine the kinds of labor needed—the proportions of skilled, semi-skilled, and unskilled workers, of male and female workers.

The raw material problem is mainly a problem of allocation. The labor supply problem is essentially a problem of utilization. There is no evidence that our labor reserves are inadequate to meet the needs of essential industries and the armed forces. The problem is not that too few people are available, but that too few people with the right training are available. The main problem is to break down skilled jobs into semi-skilled jobs, to train large numbers of inexperienced workers rapidly to fill these semi-skilled jobs, and to meet the minimum requirements for skilled labor by training and promotion within the plant.

I have frequently been asked whether I consider additional legislative authority necessary for an effective manpower program. We have been trying thus far to do the job by voluntary measures such as the local anti-pirating agreements, the provisions for voluntary transfer of workers to essential industries through the Employment Service, and special voluntary agreements such as the one recently concluded for logging and non-ferrous metal mining. There is good reason to doubt, however, whether such measures will long be adequate.

(Continued on page 163)

The Selective Service System

by

Major General Lewis B. Hershey

Director, Selective Service System

THE stealthy Japanese attack on Pearl Harbor that plunged America into war found the Selective Service System ready to accept the new and added responsibilities of raising a wartime Army.

Organized in September of 1940, to select less than a million young men each year for twelve months of military training, Selective Service faced 1942 and the problem of selecting millions of men for active combat service with confidence in its organization and its ability to do the job.

The transition from peace to war operations that convulsed most government activities caused no substantial change in the organization or operation of Selective Service.

Years of careful planning and research by the Joint Army and Navy Selective Service Committee since its creation on January 22, 1926 and the training of three hundred and fifty Army, Navy, and Marine Corps Reserve and National Guard officers from every State in the Union, as Specialists in Selective Service, were responsible for the unprecedented speed and efficiency with which the nationwide Selective Service System was organized and implemented, after President Roosevelt signed the Selective Training and Service Act of 1940 on September 16, of that year.

Just thirty days later, on October 16 the System had mobilized the Nation for the greatest single effort in its history.

With the aid of over a million volunteer workers and the organization of over 125,000 registration places, 16,316,908 men were registered between 7:00 a.m. and 9:00 p.m. in the continental United States on that day.

Fifteen months of actual operations brought Selective Service to the beginning of 1942 with a trained and experienced organization that extended into every community in the country and numbered more than 200,000 citizens, the large majority of whom were patriotic volunteer workers.

The advent of war did not bring any change in the basic principle upon which its plans had been based and its peacetime operations had been conducted.

That principle was and must always be that Selective Service will provide the armed forces with the number and kind of men they require, at the time and place they are needed, with a minimum of disturbance to the social, agricultural, commercial and industrial life of the Nation.

The obligation to serve is universal and knows no social, political or other arbitrary consideration.

The order of call is determined by chance.

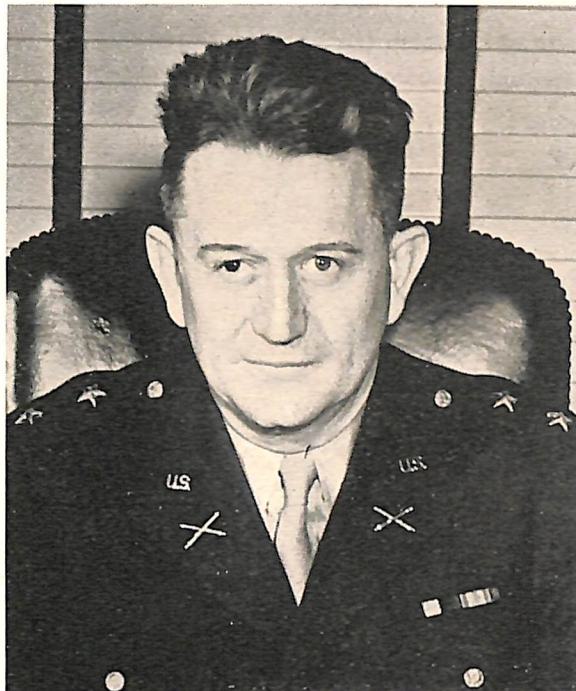
Selection for service is based on "fitness for service" and "availability for service" after consideration of the relative value to the Na-

tion of the civilian versus the military service of the individual.

During peacetime when comparatively few men were required by the Army, an average of less than 80,000 a month in 1941, physical standards were high and the rate of rejection for physical rejections surprisingly high, over 50 per cent.

Men were deferred and placed in Class II because of their civilian occupation on a very liberal basis.

Almost any gainful, worthwhile occupation was considered a cause for deferment "in the national health, safety and interest."



Men were deferred and placed in Class III for "dependency" on an equally liberal basis.

Spiritual, social and mental dependency as well as financial dependency were considered.

Over 63 per cent of those classified were so deferred in 1941.

The principle of deferring men because of "unfitness for service," "civilian service in the national interest" and "to avoid hardship to their dependents" is fundamental and continues in war as it did in peace.

Only the application of the principle has changed.

As the need for men and the size of the Army has increased, the physical standards have been lowered because there are increased opportunities for service by men who are not fit for full combat duty.

As the need for men has increased, Selective Service has become increasingly strict in the classification of men for occupational reasons and has judged requests for deferment on a basis of comparative contribution to the total war effort.

As the need for men has increased, Selec-

tive Service has become increasingly strict also in the classification of men for dependency reasons and has become more and more curious and concerned about the kind and amount of dependency involved in each individual case.

In all of this process of selecting the men who will serve in the armed forces and selecting the men who will stay at home to continue in their civilian occupations, the local board, comprised of patriotic volunteer workers from the individual community, has the first jurisdiction and makes the decision regarding their neighbors who are registered in the local board.

There are now 6,441 of these local boards throughout the country, at least one in each of the 3,070 counties.

The entire Selective Service System numbers more than 200,000 persons, the very large majority of whom are patriotic volunteer workers who serve as local board, appeal board and advisory board members, government appeal agents, medical and dental examiners and reemployment committee men.

The Selective Service System was completely organized and its personnel trained over 15 months of actual operations to do anything the armed forces required in wartime personnel procurement.

The first registration, on Oct. 16, 1940, of men 21 to 36 years of age totaled about 17,000,000.

The second registration, on July 1, 1941, of men who had become 21 since the first registration, swelled the total to around 18,000,000.

This was the storehouse of manpower from which Selective Service had to meet the manpower requirements of our armed forces; although millions more in the 20-to-21-years and 36-to-45-years groups were registered in 1942.

Thus it was that Selective Service was ready to meet the exigencies of sudden and unexpected war without any appreciable change in its organization or operations, while every other phase of our national life was convulsed and contorted by the Rising Sun of aggressive invasion.

In total war, deferment for occupational reasons became a much more serious problem than ever before.

Total war placed a new importance on food production, mineral and metal production, lumber production, arms and munitions production, transportation, communications and public services and a myriad of other activities essential to "the national health, safety, and interest."

Total war put a back-breaking burden on all war-essential activities.

At the same time the increased demands
(Continued on page 178)

The New World United for Victory

by

Nelson A. Rockefeller

Coordinator of Inter-American Affairs

THE Good Neighbor Policy has made possible the close and effective cooperation between the republics of the Western Hemisphere in their fight against Axis aggression.

From the snows of the Arctic to the tropical sunshine of Panama, Canada, the United States, Mexico and the Central American and Caribbean Republics are united as war allies for the first time in history. Brazil, largest and richest of the countries to the south, likewise has actively joined the world battle for freedom. The other South American republics also are supporting the United Nations by supplying materials for war industry, by control of anti-American activities, and by strengthening of hemispheric defenses.

Victory in total war depends on overwhelming economic as well as military power. To crush the enemy, fighting men on world battle fronts must be supplied with tools of war—planes, guns, tanks and ships—from the industrial arsenal. This arsenal, in turn, must receive an increasing flow of vital raw materials to keep the wheels of production turning.

Today, the rich resources of the other American republics, long coveted by Hitler, are being fed to the war plants of the United States. Here these strategic raw materials are being forged into weapons to be hurled against the Axis enemies of freedom. The people of the United States did not realize fully the prime importance of New World resources to the war effort until our supply sources of rubber, tin and other materials in the Far East were cut off.

Military cooperation for defense of the Western Hemisphere has made great strides during the past year. Only a few months ago, while on a flying trip to South America, I saw this preparedness firsthand. Hemisphere defenses are stronger than at any time in history. Our neighbors are collaborating fully with our armed forces to make impregnable the approaches to the vital Panama Canal and other strategic hemisphere points.

To grasp the full meaning of this hemispheric military collaboration, reverse today's picture of solidarity. Consider the enormous difficulties that would confront the United States if the other republics were not cooperating actively to prevent the establishment in the New World of any Axis bridgehead. But the nations to the south are as keenly aware of the Axis threat to their freedom as are the people of the United States. They are on the alert.

Today, the planes and naval vessels of our Mexican and Brazilian allies, in close cooperation with United States forces, are helping to safeguard the ocean highways of the Americas. Both Mexico and Brazil are moving swiftly toward a complete mobilization of their manpower. Other New World republics are taking similar steps toward a war footing in proportion to available equipment. The hemisphere's belligerent republics have been granted non-belligerent rights by the other countries which, in effect, enable them to use ports and airfields of the non-warring Americas.

Secretary of the Navy Frank Knox, after inspecting bases in Brazil last October, described cooperation between the Brazilian

fense of the American continent, for example, is the job of the Inter-American Defense Board, which was created by the Rio Conference. This board, meeting in Washington, is composed of high-ranking Army, Navy and Air Force officers of all the Americas. The past year also has seen the United States establish joint defense commissions with two hemisphere co-belligerents, Mexico and Brazil. These commissions, supplementing the work of the Inter-American Defense Board, co-ordinate plans of the general staffs of the respective nations for defense of strategic areas of the New World.

To bolster hemisphere defenses, the United States has been sending planes, guns, coastal patrol vessels and other equipment to its sister republics. Officers from these republics have come to this country to inspect our armed forces and to study aviation, tank warfare and other phases of modern combat. Similarly, United States instructors have been invited to many of the American republics to explain the use of new equipment to the armed forces of those nations.

At Rio de Janeiro last January the spirit of continental solidarity was translated into a far-reaching program of wartime action. The historic Third Meeting of Foreign Ministers of the American Republics opened a new epoch in inter-American cooperation as the New World republics welded a united front against Axis threats to their freedom, the basis of the civilization of the Americas.

The Rio Charter is a blueprint for hemispheric collaboration, not only to win the war, but also the peace that will follow. It outlines

a coordinated plan of action extending to the fields of military affairs, diplomacy, control of subversive activities, finance, economics, transportation and communications. This Charter had no counterpart in the First World War. It stands today as a monument to the way free and independent nations, in voluntary association, can meet and solve major problems.

The American republics moved fast to implement the Rio Charter's resolutions for defense of the hemisphere. By February—soon after the Rio Conference ended—19 republics of the New World had either declared war on the Axis or had broken off relations with the aggressors. Thus, within two months after Japan had forced the United States into the world conflict, Hitler was confronted with five more avowed New World defenders of

(Continued on page 176)



Mr. Rockefeller on the occasion of his visit to Brazil at the invitation of President Getulio Vargas. Left to right: President Getulio Vargas, Mrs. Getulio Vargas, and Mr. Rockefeller.

and United States armed forces as of "the 100% variety." Think of what it means to the United Nations' war effort to have friendly airfields in Brazil and the other Americas from which bombers and cargo planes are being flown across the Atlantic to our new front in North Africa, to the Middle East and Russia, to India and China.

Consider, too, this aspect of hemisphere collaboration: friendly labor from the other republics formed the bulk of the working force in the construction of new additions to the Panama Canal and in building strategic air fields in the southern republics. This permitted thousands of North American workmen, urgently needed for war production, to remain in this country, with the consequent saving of valuable transport space.

Other joint efforts for hemisphere defense are being made. Mapping plans for the de-

Lend-Lease and the United Nations War Effort

by

Edward R. Stettinius, Jr.

Lend-Lease Administrator

THE lend-lease idea is essentially a simple one. It is that nations which are threatened in common by a hostile force must employ in common all their resources against that force. Step by step this idea has become the guiding force in American foreign policy, although the strategy with which it has been put into actual practice has undergone a major change as a result of our entrance into the war.

When the Lend-Lease Act was passed on March 11, 1941, the United States became a non-belligerent partner of those nations opposing Axis aggression. We were giving our friends weapons for them to use against our common enemy, while we gained precious time to prepare ourselves for, as it turned out, Axis attack.

Once we became a belligerent, the strategy behind lend-lease entered a new phase. Even before Pearl Harbor, the needs of our own armed forces were increasing rapidly; if they were increasing in mathematical progression then, they have increased in geometrical progression since. Naturally, this has affected the lend-lease program.

We must now continue to supply our allies, and, at the same time, we must train, equip, and eventually transport, the greatest army in all our history, an army which, as Secretary Stimson has told the Senate, is expected to number approximately 7,500,000 men by the end of 1943—and this huge figure does not include the Navy, the Coast Guard, or the Marines. The needs of our allies must be balanced with the needs of the growing forces of the United States.

This balancing must be done in terms of a United Nations' grand strategy, and is the responsibility of the military leaders. In accordance with their directives, the Combined Boards established by President Roosevelt and Prime Minister Churchill apportion the resources and production of the United States and Great Britain. For example, the percentage of American tank production allocated by the Munitions Assignments Board to a given theater of operations is determined by the importance the Combined Chiefs of Staff place upon that theater. Implementing such deci-

sions, lend-lease aid is being provided currently at a rate which, in monetary terms,

Thus, from a peacetime effort to keep war away from our shores, lend-lease has become an essential part of the machinery with which the United Nations are waging world-wide warfare.

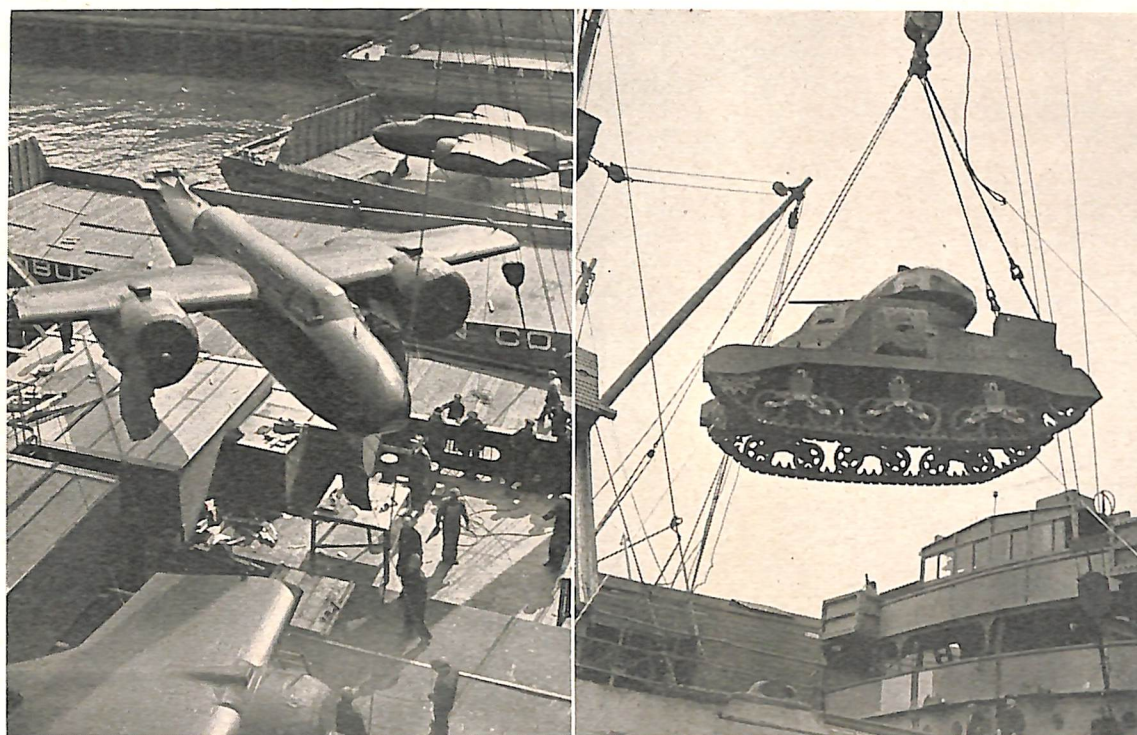
Moreover, lend-lease is now a two-way operation. We are learning that it doesn't matter *who* uses a weapon or technical process so long as it is *used*, and in the way that hurts the enemy most. American-made planes battle the Luftwaffe over the invasion ports of occupied France and rain destruction upon the war industries of the Rhineland; they strafe German troops in the snow of the Caucasus and the sands of Egypt; and they shoot down Japanese bombers

which are seeking as targets the crowded cities of China or Marine emplacements in the Solomons. American troops in the United Kingdom are using British ordnance, in Australia they are wearing Australian-made uniforms, and as they cross the Atlantic they are protected by British, Norwegian, Fighting French, and Polish-manned ships and planes. American pork feeds British factory workers, New Zealand vegetables feed American troops. The knowledge of what the stress of battle does to a certain tank, knowledge paid for in Russian blood, is applied in American munitions plants. Techniques developed by American engineers are employed in Russian oil refineries. Some of the anti-aircraft guns, barrage balloons and plane detection devices, that guard our shores were furnished by the British.

Thus, in dramatic and hard-hitting fashion, the reciprocal lend-lease aid agreements are put into effect. These provide that "the war production and the war resources of (each nation) shall be used by the armed forces of each and of the other United Nations in ways which most effectively utilize the available materials, manpower, production facilities and shipping space."

There is one other aspect of lend-lease operations which, in the long run, may turn out to be the most important of all. It concerns not the war, but the peace to follow. Civilization is bound to disintegrate if we cannot, after this war, work out some form of society

(Continued on page 179)



Airplanes, dismantled and protected for shipping, and tanks from America's Arsenal of Democracy, are loaded on ships for delivery to other members of the United Nations at distant ports. These two items are often carried as deck loads while the holds of the ships are laden with smaller and easier packed war-needs. Lower: Mr. Stettinius, Lend-Lease Administrator.

OWI Photos



amounts to something over 10 per cent of our total war expenditures.

Keeping the Public Informed

by

Elmer Davis

*Director, Office of War Information**

WE believe not only that the public is entitled to every bit of truth, where truth would not aid the enemy, but that a public armed with truth, whether that truth be good or bad, is a public equipped for the responsibilities and sacrifices of war. The very existence of the Office of War Information is proof that this policy exists.

In so far as we can make victory easier by our efforts, we of the Office of War Information are to that extent auxiliaries of the armed forces. This is especially true of the Overseas Branch. There is plenty of historical proof, recent and remote, that victory of fighting forces can be expedited by psychological and political warfare. The armies of Genghis Khan, like the armies of Adolph Hitler, were preceded by agents who spread defeatism throughout the populations he intended to attack. And among other and happier examples of the use of propaganda and psychological warfare might be cited the achievements of Benjamin Franklin in France during the Revolution and the classic job done by Woodrow Wilson in 1918.

There isn't any real cleavage between what we are trying to do abroad, not only in enemy countries but with allied and neutral countries as well, and what we are trying to do toward maintaining an informed public opinion at home. There is no cleavage because both at home and abroad we are telling the same story—the truth. As the directive which established the O. W. I. phrased it, the office was established “in recognition of the right of the American people, and of all other peoples opposed to the Axis aggressors, to be truthfully informed.”

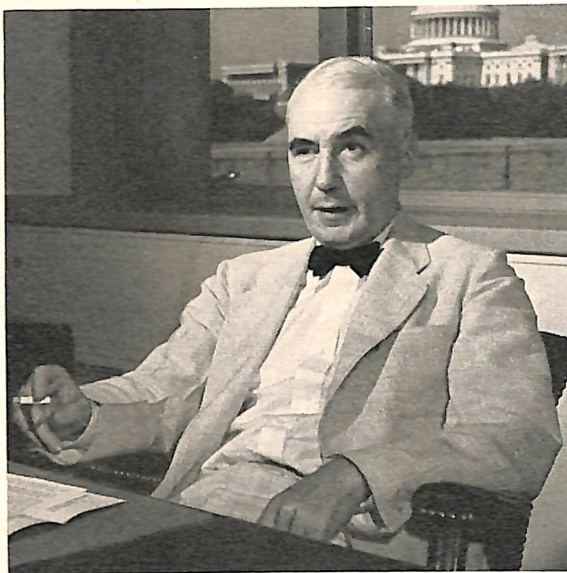
Our job at home, the job of the Domestic Branch, is to give the American people the fullest possible understanding of what this war is about—a war which our enemies, for more than two years past, have called a world revolution.

In reality, of course, this war has been conducted even more as a counter-revolution, a counter-revolution against the ideas and principles which first appeared in this country in 1776, and spread from here over most of the world. And so it is the job of the O. W. I. not only to tell the American people how the war is going, but where it is going and whence it came—its nature and its origins, how our government is conducting it, and what—in addition to national survival—our government and our people hope to get from victory.

We intend to give the people all the news except those things which must be held back on the ground of military security, because we believe that the better the American people understand what this war is about the harder they will work to fight and win it. We

are *not* press agents for government. We set forth the difficulties which face both military and civilian branches and their shortcomings in meeting these difficulties as well as their successes. To do that we must give the people not merely such news as is immediate enough to get into the newspapers or onto the radio, but that background information which will help them understand what the news is about. We plan, for instance, to issue general reports from time to time in which we shall try to tell the people how the total picture looks at the moment.

It might be objected that such surveys are propaganda directed against the American



people rather than against our enemies. But propaganda is an instrument which may use either truth or falsehood as its material and which may be directed toward worthy or unworthy ends. We are going to use the truth, and use it toward the end of winning the war. We regard this part of our job as education.

Not only have the American people a right to know what is going on, they have a right to know what the enemy is doing to keep them from understanding what is going on and to deceive and confuse them. Dr. Goebbels is still trying to fool the American people and he is still using the news itself as a weapon.

To keep news from enemy sources out of the country would be impossible and, I believe, unwise. The proper attack is to take this news from the enemy sources and set it in its proper relations to the facts. Thus the antidote comes along with the poison and people are enabled to recognize enemy news or so-called news for exactly what it is—a weapon of war which he uses just as he uses air bombs on people in Europe. This task is the duty of one of the most important divisions in the Domestic Branch.

The directive establishing the Office of War Information instructed us to coordinate the information work of all the Federal Departments and authorized us to issue binding directives in the field of information to *all* Federal Departments and agencies.

In practice, however, we find we get the most effective results through constant, seven-day-a-week consultation with the War and Navy Departments. This office's attitude toward its relationship with the departments of War and Navy perhaps is best explained by citing the single exception to our regulation of July 10, 1942 requiring all Federal departments and agencies to clear all war information with the Office of War Information. The single exception said:

“The Office of War Information will cooperate with the War and Navy Departments in facilitating the fullest possible dissemination of information involving naval and military information. Whether specific military information would be of aid to the enemy will be determined by the War or Navy Departments after consultation with the Director of War Information.”

What we are trying to do—and we have attained some degree of success which we hope will increase—is to persuade different agencies concerned with the same problem to get together and agree about it, and when only one agency is exclusively or primarily concerned to persuade others to keep out. We do not make military policy, nor, for that matter, labor policy or production policy. But when conflicts in such policies cause confusion we feel called upon to go to the right people in the government and ask that the difficulties be corrected so that we can help remove confusion from the public mind.

There are some who seem to think this office is charged with maintenance of national morale. We are not; and in my opinion there is no need for such an agency. We, too, believe that “there are no privations which our people will not willingly endure, no sacrifices which will not be unflinchingly faced as long as they are truthfully informed of the reasons for making such demands on them.”

This office has acted and will continue to act on that plan. We believe the people must be satisfied that the great sacrifices which all of us will be called on to make are being distributed as fairly as possible. Once they are sure of that, once they know what is going on, why they are asked to make sacrifices, how much we have to do, and why we have to do it—once they understand all that—and it is the job of this office to make them understand—no one need worry about national morale.

*This article was compiled from a statement before the House Committee on Appropriations.

Navy Public Relations

by

Captain Leland P. Lovette, U. S. N.

Director, Office of Public Relations, Navy Department

TODAY the United States Navy is one of the biggest news stories on earth. As our fighting forces afloat battle the enemy around the world, the American people are avid for news. It is their right to know as much about what is happening as can be revealed without aiding the enemy. To supply that information is the job of the Navy's Office of Public Relations.

This job falls into four fields: First, to keep the public informed of the progress of the war at sea through official communiques. Second, to assist all the information media—newspapers, magazines, radio, moving pictures, etc.—to cover Naval activities and use Navy material. This involves both aiding accredited correspondents, writers, and photographers to cover operations, and supplying the Navy's own photographs and informative material. Third, under the Code of Wartime Practices for the American Press, to act as "appropriate authority" in assisting publicity media to release news and photographic material on subjects restricted under the Code. And finally, to handle all inquiries from people throughout the nation who want informa-



tion on Naval personnel and activities.

Today Navy Public Relations is stream-

lined for war. Our central office in Washington is a compact unit consisting of a number of sections, each designed for a special purpose. These include Press, Radio, Magazine, Pictorial, Motion Pictures, and Special Events. Each, of course, serves the field for which it is named.

This does not mean that we are an office completely centralized in Washington, cut off from the Nation's needs and moods. Navy Public Relations Officers are posted in various large cities throughout America. These officers are our contact with the individual problems of each naval district. Through them we maintain a direct relationship with naval activities all over the country.

Over all Navy Public Relations work hangs the question: "Will this information give aid and comfort to the enemy?" To answer this question properly is one of the most important, and least understood, aspects of our work, one that has become a double problem, like the twin-headed monster of legendary fame. One head takes the form of an understandable desire on the part of press and pub-

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War Censorship for the United States

by

Byron Price

Director of Censorship

WARTIME censorship in the United States continually faces a twofold problem. It must be restrictive enough to conceal vital information from the enemy, yet it must not be so inclusive that all news about the war is kept from the American people. To establish the proper line between these two considerations is not easy; very often there is legitimate disagreement between patriotic Americans as to the proper extent of censorship.

During the year in which the Office of Censorship has been in operation we have held to a principle which I believe is fundamental: Censorship must rely on a studied application of common sense. It must not be based on whims or prejudice.

If Censorship is to have the confidence of the people, it must not be used merely to prevent criticism of the Government or the war effort. Instead, it should deal in facts rather than opinion. There must be a compelling reason whenever information is stopped by the



censor. Invariably that reason has a direct connection with the national security, involv-

ing the safety of American troops or ships or the factories which are turning out tools of war at ever-increasing speed.

When President Roosevelt established the Office of Censorship last December, less than two weeks after the Japanese attack on Pearl Harbor, he gave it two tasks. He ordered the Director of Censorship to censor in his absolute discretion all types of communications entering or leaving the United States. He also asked the Director to work out a voluntary system whereby American newspapers and radio stations would agree not to spread such information about our military and economic plans as would endanger our wartime operations.

From a physical standpoint, the first of these jobs is by far the greater. Stations have been established around the rim of the country where letters and cablegrams are examined and overseas telephone calls are monitored. From these communications the cen-

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The Army Nurse Corps

by

Col. Julia O. Flikke, A. U. S.

Superintendent of the Army Nurse Corps

WHEN the trend of events pointed an ominous finger to gathering war clouds, the Army Nurse Corps emerged from its peacetime routine, and began preparations for the inevitable coming of the next conflict. During the years of peace that followed the conclusion of the first World War, the Corps had made rapid gains in the status of its already enviable standards. It had been accorded the dignity and benefits of relative rank in 1920; the assured security of longevity retirement in 1926 and retirement for disability in 1930.

In 1940, a state of emergency caused training camps and air fields to spring up, mushroom like, in every section of the United States. A call for volunteers was issued to augment the insufficient ranks of the Corps. Nurses who were enrolled in the First Reserve of the Red Cross responded gallantly and were assigned to active duty for a period of one year. Later, that year was to be extended to "the duration, plus six months."

The attack on Pearl Harbor in December 1941 proved a stimulus that brought an influx of nurses to the service. No matter how many nurses were assigned, however, there has never been enough. That is because romance

has been rampant in Army camps and fields. During certain months there were as many marriages as there were assignments. Nurses who married were considered unsuitable for military service and automatically released. No epidemic could have been more devastating to the numerical strength of the A.N.C. Recently, a policy has been adopted that has established a new precedent in the history of the Army Nurse Corps. This policy provides that nurses who marry while on duty, be retained in the military service at the discretion of the Surgeon General. Such an innovation promises to afford material aid in attaining the essential quota of nurses.

During the past ten months, Affiliated Hospital Units have been organized at most of the large cities and have been trained at Army camps or General Hospitals. These nurses, fresh from civilian life, have been subjected to strenuous periods of training, including long hours of exercise, formation drill, chemical warfare with gas chamber drill, and the school of the Soldier. The latter has taught them the forms and practice of military courtesy. They have also been attached to General or Station Hospitals for duty that they might become familiar with Army Hospital procedures, discipline and the paper work incident to Army records. Many of the first Units activated are now on foreign soil. They may be attached to General or Station Hospitals, Evacuation Units, Surgical Units, or Field Hospitals. Later on, it is probable that they will know service at advanced dressing stations. That assignment is the first ambition of every nurse who sails.

Army Units have received materially the same training, though not in so concentrated a form. Many such Units are now overseas stationed in Alaska, Iceland, Newfoundland, South America, Africa, Ireland, the South Sea Islands, and Australia.

In this war, definite emphasis is placed on the important role the Air Forces are destined to assume. For this reason, nurses who are especially qualified physically and by reason of experience, are being assigned to that service. Very recently, five nurses who have demonstrated their ability to fly without ad-

verse reaction were assigned to the Air Ambulance Corps. It is anticipated that such ambulance service will facilitate transportation of casualties to second line hospitals.

The Army Nurse of World War II presents in appearance, a sharp contrast to her predecessors of any other period. She is smartly uniformed in trim, well fitted suits of blue, in two contrasting shades. Insignia of rank adorns her square young shoulders, a shining U.S. each tailored lapel, a caduceus with superimposed N. to denote her status as a nurse each side of her trim color. On her cuffs and edging her shoulder epaulets are bands of maroon braid to further indicate her affiliation with the medical department.

During the Summer, she may, at her discretion, change to a biege suit with white shoes and gloves. For informal hours, when comfort is her first thought, she has one-piece dresses, which conform equally to military specifications as do the other components of her uniform.

Her head gear consists of neat visored hats that match her uniforms, for Summer, and blue garrison caps with maroon trim for Winter. Her uniform equipment may be extended to include many varied garments and articles appropriate for duty in climates that range from the Arctic to the Tropics. Every garment is of superior material and make. The Army Nurse is as well dressed as she is efficient.

When, recently, the Superintendent of the Corps, was promoted from the relative rank of Major to the rank of Colonel, A.U.S., and her Assistant was promoted from the relative rank of Captain to that of Lt. Colonel, A.U.S., the Army Nurse Corps received its finest recognition from the War Department.



U. S. Navy Photo
Lt. Comdr. Sue S. Dauser (left) superintendent, Navy Nurse Corps, and Col. Julia O. Flikke (right) superintendent, Army Nurse Corps.

Army Signal Corps Photo



Sharing the hardships of our troops in our many outposts are members of the Nurse Corps. Shown above are Nursing Sister Margaret Douglas of Canada (left) and 1st Lt. Dorothy Kurtz, NC, USA, at a North Atlantic Base.

The Navy Nurse Corps

by

Lt. Comdr. Sue S. Dauser, U. S. N.

Superintendent, Navy Nurse Corps

TEN years before the birth of Florence Nightingale, Doctor Paul Bartin, a young surgeon in the Navy, who had but recently left the Pennsylvania Hospital, made a report to Congress, at the request of the Secretary of the Navy. In his report he recommended a provision for women in the Navy which in part is as follows:

"The nurses, whose number should be proportionate to the extent of the hospital and number of patients, should be women of human disposition and tender manners, active and healthy. They should be neat and cleanly in their persons and without vices of any description."

One hundred years after this recommendation, the Navy Nurse Corps was established by law May 13, 1908. It followed along the same regulations as the Army Nurse Corps. Section 3 of the Bill reading as follows:

"Chief nurses and nurses shall receive the same pay, allowances, emoluments and privileges as are now or may hereafter be provided by or in pursuance of law for the Nurse Corps (female) of the Army."

The first Navy nurses were assigned to the Naval Hospital, Washington, D. C. Their number consisted of a superintendent, a chief nurse, and nineteen nurses. There were no quarters for them but they were given an allowance for quarters and subsistence. They rented a house and established their own mess.

It was necessary for nurses requesting an appointment in the Navy, at this time, to travel to Washington for an oral and written

professional examination, and also a physical examination. They were required to perform the travel entailed at their own expense, and bear their living expenses during the period of time required for the examination which lasted about three days. They then returned to their homes to await the outcome of their application. Most of the applicants were from the East Coast since the expenses involved in travel were considerable and nurses living in distant states were not inclined to seek positions where placements evolved on such requirements. As the Nurse Corps increased and nurses were reluctant to assume the expenses incident to appearing in Washington for the required examinations, the Surgeon General directed the applicants to submit an original essay on nursing subjects instead of the written examination. At present credentials on applicants are collected from the training schools and the hospitals in which they state they have been employed. We have the full cooperation of directors of nursing in the various schools and appointments are made on the credentials which they submit in behalf of the nurse concerned. The Naval Reserve Nurses whose applications are initiated through the Red Cross have had their credentials searched by the local Red Cross committees.

Early in 1909 nurses were sent to the Naval Hospitals in Annapolis and New York. In a short time they were ordered to Mare Island, California and rapidly to all the Naval Hospitals. In 1940 they were sent to the Philippine Islands. A few years later to Guam, Honolulu, Yokohama, Samoa and on the East Coast to Virgin Islands, Haiti and Guantanamo Bay.

In the first World War they were assigned to hospitals in Ireland, Scotland and the coast of France. In this war their designations of duty are many and varied both within and without the Continental limits of the United States. They follow the fleet in hospital ships and truly see the world through and beyond the port hole. They are assigned to transports for the care of evacuees.

The requirements for appointment in this service with the Navy are usual: age, 21 to 40, high school graduate, academic: graduate, registered, nurse from a School of Nursing approved by the Surgeon General; single. They

must be physically qualified in accordance with prescribed standards, and be prepared for acceptance of assignment without limitations of service.

There is opportunity for exercise of all the nursing arts and skills in the large Naval Hospitals. Instructors, anesthetists, ward administrators, physical therapists operating room supervisors, pediatrics supervisors, obstetrical supervisors, out-patients and clinic work, industrial work and many other arts of the nursing profession.

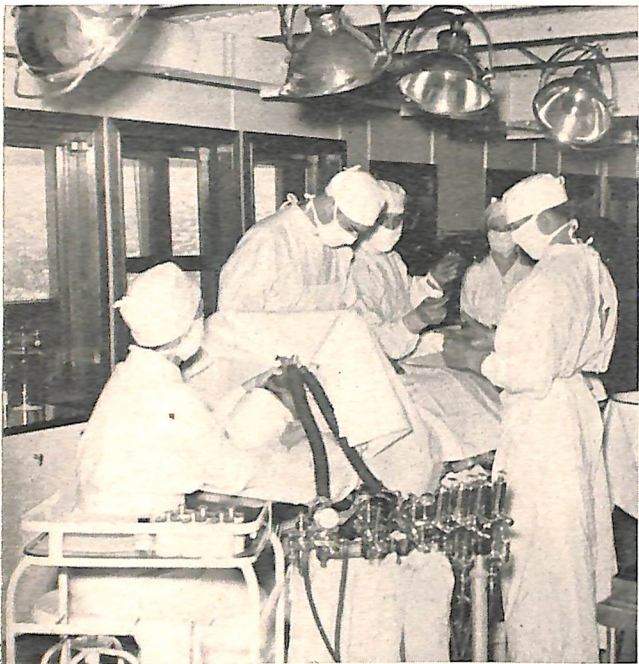
The Navy Nurse Corps is increasing to meet the needs of Naval expansion. The Naval Hospitals will be rapidly staffed and must be prepared for any emergency.

Navy Nurses in Pearl Harbor, Kaneohe Bay, on U. S. S. Solace, in the Philippines and in Guam felt the first impact of this war. Five were made prisoners of war when Guam was captured but have since been repatriated. Eleven Navy Nurses are somewhere in the Philippines. One Navy Nurse, who was part of a Navy operating unit with the Army on Bataan, escaped in a submarine to Australia and eventually came to the United States.

The aim of the Navy Nurse Corps is to expand in number of nurse appointees who are capable of efficient performance of duty in any situation regardless of the difficulties with which they might be confronted.

Representatives of four women's branches of the armed services. Left to right: 2nd Lt. Doris Hyde, U. S. Army Nurse Corps; Ensign Mary E. Hill, U. S. Navy Nurse Corps; Lt. (jg) Marion R. Enright, USNR, of the WAVES (Women Assigned to Voluntary Emergency Service), and Lt. Alberta M. Holdsworth, of the WAACs (Women's Army Auxiliary Corps.)

U. S. Navy Photo



U. S. Navy Photo

Aboard the U. S. Navy's floating hospitals, the members of the Navy Nurse Corps play an essential part. Shown above are Navy nurses assisting officers of the Navy Medical Corps in an operation in the starboard operating room, U.S.S. Solace.



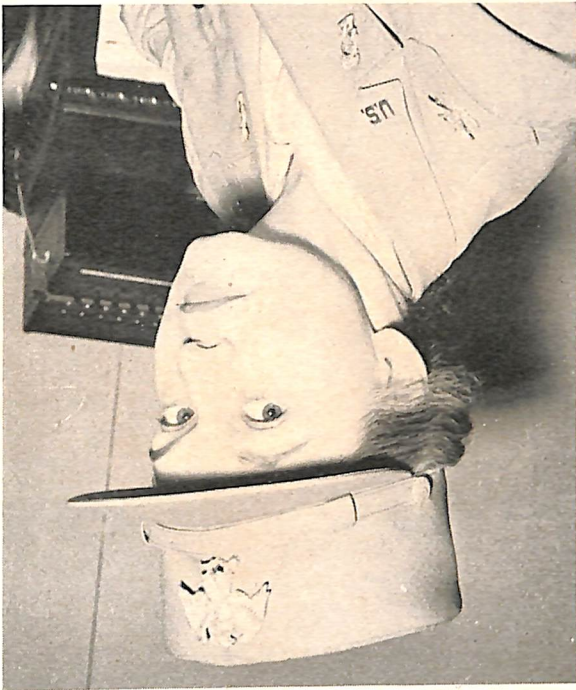
For Military Efficiency ---- The WAAC

by
Colonel Oveta Culp Hobby
Director, WAAC

WOMEN today realize that their part in total war is one of active participation. American women understand the issues of this war, they intelligently follow the progress of battles, they want to serve their country. The Women's Army Auxiliary Corps gives them one opportunity to do this through vital work directly with the war machine.

The origins of the WAAC lie in military necessity. There is no other reason for the WAAC. There is no other purpose behind it. That the Women's Army Auxiliary Corps is a purely military service, is well known by now. It was organized at the request of the War Department to serve with the Army of the United States for the purpose of releasing men in rear-line duties for service at the fighting front. This function is to be accomplished by replacing men in jobs for which women have been proven more skilled and better experienced, and by supplementing soldiers in other duties for which women are especially trained and adaptable.

The chief categories in which women have



proven better than men are in various phases

of administration, in mess management, including nutrition and dietetics, in telephone communications and in many types of existing Army duties which call for patience, manual dexterity, repetitions routine, and quick mental and physical coordination.

Accordingly there are two types of WAAC units currently being formed: Aircraft Warning Service Companies, and Post Headquarters Companies. The former is a specialist unit to be assigned to duty with the Fighting Comands in Information and Filter Centers.

Post Headquarters Companies, which average about 150 members, are the second type unit now being activated. They are composed of a Headquarters Platoon including mess sergeant, supply ser-



Eight Third Officers of the Women's Army Auxiliary Corps receive an official welcome from Col. George A. Horham, Executive Officer of Camp Lee's Quartermaster School, as they arrive to begin a course in administration and supply. Left to right, Third Officers, Margaret L. Fullerton, of Kewanee, Ill.; Alva C. Martinelli of Plymouth, Mass.; Sarah E. Emmert of Englewood, Ill.; Matilda Plummer of Weymouth, Mass.; Ruby E. Herman of Newburgh, N. Y.; Eleanor Aaron of Pittsburgh, Pa.; Louise E. Bain, of Danville, Ind.; and Alice W. Moroney of San Francisco.

geant, company clerk, other administrative personnel and the all-important bakers and cooks who help make the unit self-sustaining, the Clerical Platoon of typists and stenographers, the Service Platoon of motor transportation personnel, the Communications Platoon for telephonic service, and the Miscellaneous Platoon with its Theater, Service Club and Library Sections.

However, Post Headquarters companies may vary in size and types of platoons according to the requirements of the Army Command requisitioning them. They will be as flexible in organization as the needs of the Post to which they will be attached. Each is tailor-made for efficiency—a self-sustaining unit doing the specific duties which will replace soldiers on that particular post, woman for man.

By their jobs of replacing men in non-combatant duties, the WAACs will hasten the day of victory. For the greater the soldier-man-power to throw into the offensive, the sooner we achieve the basic aim of the armed forces—defeat of the enemy and victory for the United Nations.

At present the WAAC is, in a sense, a specialist corps. For, in order to do a job of replacement you must have a trained personnel. We have been able to recruit a high percentage of trained women. All have had past experience to some degree, in the duties for which they qualify. But in addition they are given specific training in military indoctrination.

Basic training for auxiliaries, the WAAC equivalent of enlisted men, is a four week period of instruction which includes, among others, such subjects as Military Customs and Courtesies, Army and WAAC Regulations and the Articles of War, Military Sanitation and Personal Hygiene, Defense against Chemical and Air Attack, Map Reading, Safeguarding Military Information, Property Responsibility, Close Order Drill and Physical Training.

Upon completion of Basic Training, the auxiliary may be immediately assigned to duty or may be sent on to Specialist School for further training in Administration, Baking and Cooking, Motor Transportation, or Signal Communications. Specialist training is one way the WAACs can win technical non-commissioned officer grades. More than 1,300 women selected from civilian life from some 30,000 nation-wide applications are going through nine Officer Candidate Schools this year. These women were chosen on the basis of comparative skill, training and experience. The quality of leadership was another prime consideration. Once this officer nucleus is established, all future

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How the Waves Fit into the War Picture

by

Lt. Comdr. Mildred H. McAfee, U. S. N. R.

Director Women's Reserve, U. S. Naval Reserve

THERE have been moments during the past month when women accepted for volunteer emergency service began to wonder if the emergency consisted solely of being photographed for war pictures. The curiosity of the public seemed occasionally to be limited almost exclusively to what WAVES would wear and whether or not they would salute and be saluted. As to the wardrobe that is now established. The people who wear the uniform will be very comfortable in it when the world stops staring at it. As to the saluting, the women mean to do it on all appropriate occasions. They have been known to bow politely and meet their hands midway to their hats, but that is the result of pre-Navy lifetime indoctrination and is not designed to be disrespectful. The question has frequently been asked as to whether the men will salute the women. The answer that has been given to me is that the WAVES are *in* the Navy, and that therefore they give and receive salutes. Indeed, saluting is still such a new privilege and responsibility that one WAVE was surprised to hear herself respond to a male junior officer's salute by smiling and saying "thank you." This might be the moment to say that there are places where a woman officer appears with her hat on because she is a woman. Under such circumstances, when a man would be without his cap, women consider their hats a feminine accessory, not a uniform cover—hence no saluting.

But what do these women do besides getting their pictures taken and complicating the salutations of the Navy? So far the officers' training school—the first of our schools—has mainly been preparing women to prepare other women to replace men in shore establishments, that the men may go to sea. Members of the first two officer classes graduating this autumn have in part been detailed as understudies to men Naval officers assigned as instructors in the recently opened enlisted WAVE schools. A few, however, have already replaced men in the Bureaus and others are at work on job analyses upon which replacement assignments can be based. Future officers will come into active service as definite replacements except for the several women selected for supervision of large enlisted details of women.

At this writing, two of the above mentioned enlisted schools are well on their way toward graduating their first classes of storekeepers and radiomen. A third enlisted school, set up for the training of yeomen, has already graduated its initial group some five weeks earlier than planned as a result of the unforeseen ability of those enlisted as stenographers. Indeed, these yeomen are already at work in numerous Naval Bureaus and centers, per-



mitting enlisted men to be sent to sea.

Two enlisted schools for general indoctrination are in the process of being opened. A major share of students in these schools will be assigned to aeronautical training centers for technical instruction, that the first complements of the more than 20,000 WAVES requested by the Bureau of Aeronautics alone can be supplied at the earliest possible time.

The chief criticism of this program so far has been the fact that it will take so long to get any appreciable number of women into positions replacing men in the immediate future. It seems most unwise to try to replace an experienced and trained man by an inexperienced and untrained woman. Since the success of the whole venture will be determined largely by the efficiency of the first group of officers and enlisted women, all the official advisors of the Women's Reserve have cautioned against inadequate preparation.

There seem to be few activities in which women cannot be used. Congress has limited the place to the continental limits of the U. S., and has forbidden assignments to combat ships on sea or in the air. It has limited the ranks to those of junior

officers. There are no limits to ultimate numbers nor to varieties of billets. Already plans are approved for training parachute riggers, aerologists, tower control operators, aviation machinist's mates, aviation metal-smiths, cooks and bakers, and many other types of workers, in addition to the radiomen, storekeepers and yeomen already in training. With officers at work in every Naval District and in each Bureau in Washington, and with approximately 200 yeomen already detailed to billets, the program begins to come to life.

There are some Navy men who legitimately hesitate about the strange new development in Navy practice. "This man's Navy" finds it hard to imagine women at work in its offices and shops. The WAVES hope everyone will believe them when they say that it always will be "this *man's* Navy." The women are here because Navy officials foresaw a shortage of man power and asked women to substitute for them. The women of America are honored to be allowed to substitute for Navy men who have commanded the respect of the entire country. They will make every effort to do as good a job as possible. They want no privileges except the fundamental one

(Continued on page 175)



U. S. Navy Photo
A group of the first WAVE officers in Washington reporting for duty. Left to right: Lt. Jean T. Palmer, USNR, of New York, N. Y.; Lt. (jg) Virginia Carlin, USNR, of Springfield, Mass.; Lt. (jg) Marian Enright, USNR, of New York, N. Y.; and Ensign Dorothy Foster, USNR, of Atlanta, Ga.

Services Organize Own Relief

Army Emergency Relief

by

Maj. Gen. Irving J. Phillipson, U. S. A.

Executive Director, Army Emergency Relief

THE obligation of the Army to care for its own is traditional. The underlying purpose is to improve morale which is a function of command. It was with this purpose in mind that the War Department recently organized Army Emergency Relief to aid soldiers and their dependents. The American Red Cross through its Congressional Charter and under the provisions of AR 850-75 and MR 1-10 has the primary responsibility for a broad program of voluntary aid to military personnel and their dependents. Army Emergency Relief supplements this general program of Red Cross in those cases in which commanding officers deem that direct aid through Army Emergency Relief is essential.

To facilitate these activities, a nonprofit corporation known as "Army Emergency Relief" was organized under the laws of the District of Columbia. The business of this nonprofit corporation is transacted by a Board of Managers consisting of a President, two Vice Presidents, an Executive Director, a Secretary, a Treasurer, and nine other members. Ex officio, the Under Secretary of War is the President of Army Emergency Relief and the Assistant Secretaries of War are the Vice Presidents. The President appoints the Executive Director, the Secretary and the Treasurer. Successors to the nine members, who for the first year were appointed by the President of Army Emergency Relief, will be elected by the membership at the annual meetings. The Secretary of War is Chairman of the Board of Governors and General Pershing is the Honorary President.

The following persons are now members of the Board of Managers which is empowered to transact all business of Army Emergency Relief:

Robert P. Patterson, Under Secretary of War (President)
John J. McCloy, The Assistant Secretary of War (Vice President)
R. A. Lovett, The Assistant Secretary of War for Air (Vice President)
Major General Irving J. Phillipson, Executive Director
Mr. Ord Preston, President of the Union Trust Company (National Treasurer)
Colonel F. Trubee Davison, Army Air Force (National Secretary)
Lieutenant General H. H. Arnold, Chief of the Army Air Force
Lieutenant General Brehon B. Somervell, Commanding General, Services of Supply.
Lieutenant General James G. Harbord, U.S.A., Retired
Major General John F. Williams, Chief of the National Guard Bureau
Major General A. D. Surles, Director, Bureau of Public Relations
Brigadier General Bennett E. Meyers, Army Air Force
Brigadier General Miller G. White, Assistant Chief of Staff, G-1
Colonel John Thomas Taylor, Bureau of Public Relations
Mrs. Arthur W. Page, President, Army Relief Society

The National Headquarters of Army Emergency Relief is located in the War Department. Branches have been established in the War Department, at each service command and department headquarters, in the Army Air Forces, and at West Point. Branches are authorized to establish sections at all posts, camps, stations, or other military establishments within the respective jurisdictions of the headquarters at which branches are located. Commanding officers of general depots, ports of embarkation, and other War Department activities are authorized to organize sections under appropriate service command branches by arrangement between commanders concerned.

To obtain assistance, application should be made to the nearest branch or section or direct to Army Emergency Relief, War Department, Washington, D. C. Rank or service will not influence the amount of aid granted to Army personnel or to their dependents.

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Navy Relief Society

by

Mrs. Robert M. Griffin

Third Vice President

FOR years, there had existed in the minds of Naval Officers and their families the need of a fund to be used to relieve the distress of the wives and children of men who died in the Service. In 1904, eighteen thousand dollars was received by the University of Pennsylvania from the sale of tickets for an Army-Navy football game. This sum was turned over to the Army and Navy. The Navy's share was used to start the Navy Relief Society, which was incorporated under the laws of the District of Columbia.

Gradually, it became evident that active personnel and their families needed assistance also, when illness and other such emergencies proved too big a drain upon their resources. Interest free loans, repayable by allotment, gratuities, and advantageous hospital arrangements have been made for the past fifteen or twenty years, and the Navy Relief Society has grown steadily toward its present objective—that of social service work for the men and families of the Navy and Marine Corps. Its contribution toward morale in time of war is one of deep concern to every officer and man in the Naval Services. The value of the knowledge that his family will be assured of financial help and sympathetic understanding in any real problem that may confront them during his absence cannot be overestimated.

The headquarters of the Society are in Washington and its affairs are conducted by a Board of Managers. The officers and members of the present Board are:

Admiral Ernest J. King, USN (President)
Admiral J. O. Richardson, USN (Ret) (Executive Vice President)
Rear Admiral Charles Conard (SC) USN (Ret)
(Second Vice President)
Mrs. Robert M. Griffin (Third Vice President)
Lieutenant Floyd T. Starr, USNR (Secretary and Treasurer)
Admiral David F. Sellers, USN (Ret)
Rear Admiral C. R. Train, USN (Ret)
Vice Admiral A. P. Fairfield, USN (Ret)
Rear Admiral B. H. Dorsey (MC) USN
Captain Frank Baldwin (SC) USN
Captain Robert D. Workman (ChC) USN
Colonel Alley D. Rorex USMC
Mrs. Randall Jacobs
Mrs. Frank Jack Fletcher
Mrs. James F. Byrnes

Admiral Richardson has charge of all administration and brings to this office his wide experience in matters of personnel.

All general policy for Headquarters and Auxiliaries is made by the Board of Managers, working through its special committees and at its monthly meetings.

One of the functions of Headquarters is to ascertain through the Relief Committee the need, financial or otherwise, of the family of every man who is killed or missing in action. This inquiry is made for Headquarters by one of the Auxiliaries, if the family lives near a Naval Station. If not, the Red Cross is asked to obtain the required information. An operational agreement covering all details of such procedure has been signed by the Navy Relief and the Red Cross. Thus, a visit to the family is always made by some representative of Navy Relief, and any problems coped with by a competent person. If the assistance required is monetary, it is promptly given.

Auxiliaries have been established at the principal Naval Stations. There are thirty-one in existence at the present. They are set up under the Commandant as President, and have a working Board of Directors similar to that of Headquarters. This Board decides upon local policy and sends monthly reports to Headquarters.

The Executive Secretary, who may be a Chaplain assigned to Navy

(Continued on page 174)

The Chaplaincy of the Armed Forces

The Army Chaplain

by

Chaplain William R. Arnold

Brigadier General, Chief of Chaplains, U. S. Army

THE task of providing proper religious ministrations for the soldier is the work of the Army Chaplain. Primarily and essentially the purpose of a chaplain's life and work is Divine Worship. This must precede and determine all his other religious activities. Recognizing the importance of this work, the War Department stipulates that the chaplain must be an ordained clergyman with three years of practical experience in the ministry and must have the endorsement of his denomination at the time of being appointed, and thereafter. Chaplains, drawn from church groups of the three major faiths, as a body constitute the Corps of Chaplains, headed by the Chief of Chaplains who holds the temporary rank of Brigadier General and is appointed for a term of four years. The office of the Chief of Chaplains is an agency of the Administrative Services, Services of Supply.

The co-ordinating and supervising functions for the Corps of Chaplains are the responsibility of the Chief of Chaplains. He recommends policies and methods of procedure, but never interferes with the religious freedom or doctrinal beliefs of the chaplains, as a group or individually. At all times, the Chief of Chaplains maintains contact and cordial relationship with civilian organizations, religious and secular, for the benefit of the chaplains and their work.

The Deputy Chief of Chaplains and the Executive Assistant constitute the Executive Division which is charged with the direction of procurement and training, the execution of plans and policies and the administration of the activities pertaining to the office and personnel. This division directs and coordinates all functions of the divisions of the Office of Chief of Chaplains, reviews the work and supervises the preparation of estimates on funds and appears in defense thereof before budget committees, procures office supplies and equipment, and is responsible for documents, publications, files and mail.

The Control Division examines the organization, methods and procedures of the Office of the Chief of Chaplains and recommends action

(Continued on page 174)

The Navy Chaplain

by

Chaplain Robert D. Workman

Captain, Chaplains Division, Bureau of Naval Personnel

THE Navy Department, confronted by the greatest, most challenging responsibilities in its entire history, is vitally aware today of its duty to provide an adequate religious and spiritual ministry to the personnel of this branch of our nation's armed forces.

The Chaplain Corps of the Navy is being expanded to meet this challenge and responsibility. Through the medium of a Chaplain's School, organized in January of this year, clergymen who are accepted as Chaplains are indoctrinated and trained for active duty. This period of preparation and training is of inestimable value to the new Chaplain. Prior to the introduction of this new system of training a newly appointed chaplain was given what might be called a tutor course under an older, experienced Chaplain.

In time of war, however, our older Chaplains are much too busy to have adequate spare time to devote to the indoctrination of the newcomer. Hence the adoption of the new and much more efficient method of preparation for the all important work of the welfare and religious leader.

As rapidly as Chaplains are available they are being assigned to ships and to stations in continental United States and abroad. In addition to Naval Personnel, Chaplains are assigned to Marine Corps organizations and to Coast Guard stations and bases. The present strength of the Chaplain Corps is several times that prior to the emergency, and still there is need for many more qualified applicants. Religious denominations are represented in the Corps on a percentage or quota basis.

It is the sincere hope of the Navy Department that these denominations will realize that the Navy can meet this challenge only as the

churches provide the clergymen necessary for this great task. The Bureau of Naval Personnel is extremely anxious that not a single ship or station be without its full quota of Chaplains. While this goal has not been realized we believe the people of the United States will awaken to their share in this responsibility and give us the clergymen we need.

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In our South Pacific island bases, the Army, Navy, and Marine Corps worship together as well as fight together. Here, amid a setting of luxuriant palm trees, with a Navy Scout Bomber in the background, an Army Chaplain performs the rites of the Holy Communion. The pews are made by plants supported by crated tail fins for heavy bombs.

U. S. Navy Photo



Chaplain Arnold



Chaplain Workman

The United States Congress and the War

by
Hon. Sol Bloom

Chairman, Committee on Foreign Affairs, House of Representatives

THE successive steps taken by Congress after war broke out in Europe form a pattern of foresighted preparation for performance by the United States of what has now become its supreme duty—the destruction of its assailants. Congress sensed the danger and prepared for war long before Pearl Harbor. Since that attack, Congress has mobilized the energies and resources of the country on a scale sufficient to accomplish the end sought.

Much war legislation before Dec. 7, 1941, was enacted at the suggestion of the President. Cooperation between the legislative and executive departments is prescribed by the Constitution, desired by the people, and indispensable to success in war. Those critics who picture Congress as tamely surrendering its powers to the President would be the first to cry out if Congress should refuse to exercise its powers as recommended by the President. It is silly to assert that Congress has surrendered its powers. It could not do so under the Constitution. Nor could any President take over legislative powers without violating his oath to support the Constitution.

One of the first steps designed to safeguard this country against rising dangers was the act providing for construction of 5,500 planes for the Army. This was enacted before war broke out in Europe. In taking this precaution Congress cooperated with the President and the people approved the procedure.

The fortification of Guam was begun, also, about this time—too late, in view of the perfidy of Japan, but not too late if we bear in mind the fate awaiting Japan.

When war broke out in Europe President Roosevelt called Congress in extra session and recommended the repeal of the embargo upon arms. The embargo had been applied in the hope that it would help to dissuade foreign nations from going to war. Blasting of this hope brought realization that some nations had become outlaws and were bent upon destroying all nations enjoying free government. The nations fighting the outlaws were enabled to obtain war material from us when the arms embargo was lifted. It was still hoped, however, that the United States could remain officially neutral and at peace.

This hope dimmed rapidly after the fall of France. Congress and the President took stock of our country's situation. It was decided to double the size of the Navy and to apply universal conscription. The two-ocean Navy bill became law late in June, 1940. It provided for the following combatant tonnage at an estimated cost of \$4,010,000,000:

Capital ships 385,000 tons
Aircraft carriers 200,000 tons

Cruisers 420,000 tons
Destroyers 250,000 tons
Submarines 70,000 tons

By September, 1940, a year after war began in Europe, the draft bill was enacted and the Army began to expand.

Later in 1940 and early in 1941 it became evident that the United States was in great danger and that neutrality was both impracticable and unwise. Congress shared the



President's opinion that it had now become the duty of the United States to aid the nations defending freedom.

Then began the task of shaping the most powerful weapon that mankind has ever seen—the weapon of American War-might. The lend-lease bill was enacted, and appropriations were voted to build war factories and ships on a scale far exceeding the resources of all enemy nations.

It was well that time was saved, for soon the capacity of Japan was added to that of the other enemy nations.

The President recommended that limitations upon the service of drafted men be removed. Opinion in Congress was sharply divided because many members could not convince themselves that war was at hand. The bill extending the service of draftees became law by a narrow margin.

The last step before the United States found itself at war was the arming of merchant ships for defense against submarines.

I submit that the record of Congress before Pearl Harbor was one of conscientious effort

to avoid war while preparing for the worst.

Japan's treacherous attack at Pearl Harbor was the signal for instant action by Congress, looking to the earliest possible destruction of the enemy. War was declared within a few hours. Three days later, Congress recognized that a state of war existed against Germany and Italy. The people's law-making powers, exerted through Congress, were invoked to arm the Commander-in-Chief with all authority required to strike effectively on and below sea, ashore and aloft. No request made by the Army or Navy has been neglected or denied. All that authority and money can do to aid the allies has been granted by Congress.

I refer the reader to the list of appropriations made by Congress. The total allowance of money for war purposes had reached \$220,000,000,000 on Oct. 20, 1942.

Many changes in civil affairs have resulted from war conditions, and Congress has dealt wisely in safeguarding the people against disaster on the one hand and undue restriction on the other. Control of the nation's economy by the government is unavoidable if we are to win the war. Congress has provided for price control, stabilization of wages and salaries, more abundant revenue, insurance against bombing raid damage, protection of civilians, encouragement of small business, employment of women in auxiliary Army and Navy organizations; declared war against Bulgaria, Hungary and Roumania; increased Army and Navy pay, increased appropriations for housing war workers, granted allowances to families of enlisted men, given the vote to men in the Armed Forces, and otherwise promoted the general welfare.

In the high tension of wartime it is inevitable that all agencies of the government should be criticized for what they do and fail to do. Congress has received its full share of criticism, but it has also had the benefit of constructive suggestions and salutary advice from patriots everywhere.

The net result of criticism, suggestion, advice, information and opinion is enlightenment, which enables Congress to perform its work more effectively. Out of the ocean of tumult comes the considered act, representing the collective will of the people. All that members of Congress ask is that critics consider the finished product, and not merely the raw material of projects put up to Congress. If the laws are effective, sane and far-seeing, what matters all the commotion and hubbub surrounding discussion of the preliminaries? In this democracy within a republic every man and woman is entitled to criticize and offer opinions. This is (AND FOREVER WILL BE, UNDER GOD) a free country.

Manpower and the Army

by

Lieutenant General Joseph T. McNarney

Deputy Chief of Staff, United States Army

MUCH has been done to produce the kind of an Army that will bring victory. From a skeleton force scattered throughout the country, the Army has grown in an astonishingly short time to great proportions. We now have divisions where not so long ago the garrison consisted of little more than a battalion; Air Force squadrons have grown into groups; the schools involve such numbers of students and have increased so in size that comparison with pre-war days is almost impossible. Industries are booming, villages are crowded to the bursting point with war workers, even the landscape has changed. New weapons, new techniques, new types of forces are being developed with astonishing speed. The nation has changed from peace to war.

In spite of the great strides which the Army has made, there is no justification for complacency. Much has been done; much more remains to be done. We must learn to use the manpower of the country with more care and much more efficiency. A great deal of it is being wasted or diverted to uses less essential to the war effort than is wise.

Our war effort has reached a point where the effective use of available manpower is at the critical, the decisive stage. As the President recently informed the nation, "We are learning to ration materials, and now we must learn to ration manpower." This injunction applies to the Army as well as to industry.

For the Army this will be a new experience. In times of peace, the Army is prodigal in its use of manpower and is obliged to be miserly in the spending of appropriated funds. Now we are faced with a very different situation—it is absolutely essential that we exercise the utmost economy in the use of our manpower. The national spotlight is on the Army and the action taken by the Army ought to set the pace and serve as a model for industry to copy. Unless the Army releases able-bodied men from secondary jobs for the primary task of destroying the enemy, industry can hardly be expected to man the war industries by drastic diversions from less essential jobs.

Congress has authorized the induction of 18- and 19-year-olds. This step is necessary. However, it is not enough for the War Department to secure the services of these young men. A very great responsibility rests upon the Army to apportion manpower in such a manner as to secure the greatest possible economy of force.

Economy of force applies in the Zone of the Interior, as well as on the battlefield. Para-



graph 116 of the Field Service Regulations prescribes:

"Concentration of superior forces, both on the ground and in the air, at the decisive

place and time, and their employment in a decisive direction, create the conditions essential to victory. Such concentration requires strict economy in the strength of forces assigned to secondary missions."

In the months to come, it is essential that commanding officers of all units bear in mind and practice these principles.

To create a powerful Army—an Army geared to win—economy of force demands that the maximum number of strong, able-bodied soldiers be placed in tactical units training for combat. A corollary to this is the necessity to use limited service men for the jobs demanding less physical stamina than is required for active military operations. All headquarters and overhead installations must reduce their personnel requirements to the minimum. Also, members of the Women's Army Auxiliary Corps must be used to replace able-bodied soldiers and thus release them to units destined for the fighting fronts.

It is only human, and it is desirable, for any individual to consider his own job more important than any other. This is a proper attitude. Also, it is only natural that each should demand all that can be obtained to enable him to do his job. And so, because of this, a unit commander is inclined to build up his headquarters and overhead installations to be larger than is really needed, and to demand the very best in personnel. It is right for every commander to appreciate the importance of his job; but it is wrong for him to try to obtain more men and in higher qualifications than minimum requirements dictate.

A very real contribution can be made by all officers and men who are not actually at the fighting fronts. All must maintain a sense of proper over-all perspective; all must see the big picture. The job must be done, not only to the best of their ability, but with the minimum personnel. This requires a streamlined organization, utilizing to the utmost, personnel well suited to the specific purposes of these organizations, but not fitted for active combat. This involves the transfer to tactical organizations, training for combat, of all able-bodied individuals not essential to their present duties. Nothing short of this will provide the manpower needed at the fighting fronts and in the heavy industries which provide the sinews of war.

This is essential for Victory.



Economy of manpower, says General McNarney, is necessary to the end that the fighting fronts get their full needs.

The Home Front

by

Leon Henderson

Administrator, Office of Price Administration

ON the fighting front we have made our start. The battles of the Solomons, the Coral Sea, and of Midway, the defense of Wake Island are testimonials of the ability and courage of our Army and Navy and Air men. They demonstrate that spirit which, throughout our history, has won our wars.

The speed with which our Marines, our Navy and our Soldiers have struck, the stubborn tenacity they have displayed are a portent of what we can soon expect from our armed forces. They know their job. They are *doing* their job. They have the will to win.

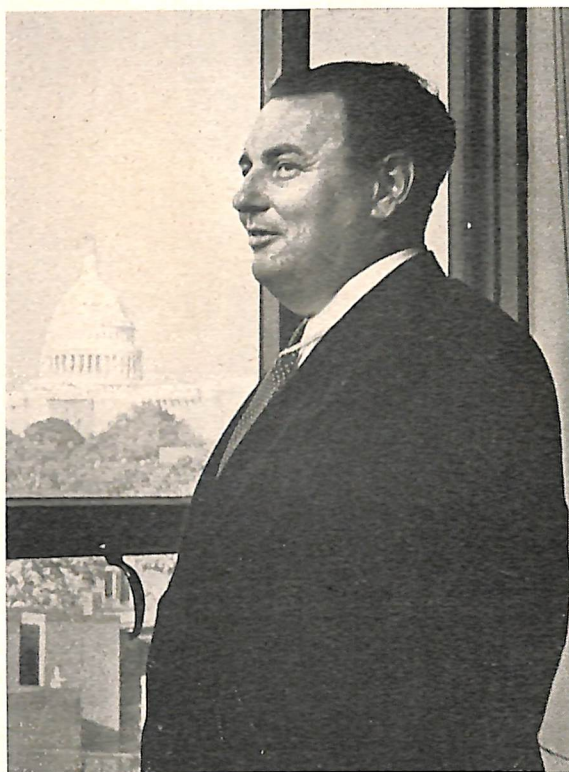
We Americans at home have not begun to match them. If I say that we are less conscious—yes, and less conscientious about *our* part in this war—I am not under-evaluating the spirit and endeavor that has pushed our production ahead with speed and effectiveness. If I say that we Americans at home have not yet developed the same spirit of aggressiveness that our boys have displayed in the Solomon Islands, I am not suggesting that we are complacent. A glance at the shrinking map of that part of the world which we and our allies hold has pretty well killed complacency. What I *am* suggesting is that the time has come for us to develop our traditional spirit—a spirit of *offense* which will equal that of our fighting forces, which will enable us to *drive* through. The time for waiting, the time for adjustment, the time for drifting and for aimless and amiable talk is over. We as a people must face up to the reality of this war. We must face it not in a mood of passive acquiescence, but in a spirit of angry and aroused determination—a determination to fight with the same grim courage and unswerving will that our soldiers have shown and that we have asked of them.

For a time there was a clamor for a second front. That was a military matter, and as we all know, when the proper time arrived, our military leaders moved. But there is a third front—or a fourth—of which I *can* speak on which this war is also being waged. This front is the war on inflation and profiteering. It is the war on unjustifiable rent boosts and for a just distribution of war-reduced commodities. It is a question of whether we want to win this war or whether we want personally to profit from it.

It is not a front which can be fought with the weapons of war. It is a war of economic forces, which usually hits the headlines not in glamorous prose but in lustreless statistics and the bare boned facts of financial pages. The enemy is not always tangible—not always easy to find and grapple. Yet the enemy is there—and that enemy, like all enemies, must eventually be met and conquered by the will and determination, the courage and the sacrifices of men and women.

The Office of Price Administration has been battling with that enemy. We have met him sometimes afar, sometimes at close quarters in the form of the greedy, the selfish and the blind self-seeker. For many months now we have been waging a campaign for the maintenance of prices on a large part of our commodities—sometimes on the offensive, sometimes, necessarily, on the defensive.

Today—here and now—I am proposing a



new offensive on that front. I am asking for the united aid of all people—workers and businessmen, housewives and professional men—throughout America to enter into a new phase of that battle—a phase in which we will take and maintain the offensive. Today—here and now—I am asking all Americans to accept—no, to seek out—further sacrifices for the sake of our common fight for freedom.

Why choose today? Tomorrow may be too late and—if we lose this war there may be no days after. Now, in this 12th month of war, we face one stark, certain fact. *Unless we continually press ahead in our fight against inflation, that battle will be lost.*

First, what is the picture of our fight against inflation as it shapes up today? The plain fact is that we have been on the defensive.

Let me give you a few facts on that. Since the institution of the General Maximum Price Regulation in May our cost of living has continued to advance. Without price regulation, admittedly, that cost would have been greater. How much greater it is impossible to say. Our figures do show that prices on commodities

that *were controlled* under the original Emergency Price Control Act have gone down. That is an achievement. It is, however, merely a ledger achievement. Balanced against the rise on costs *not* controlled, you can see that, despite the gain, the cost of living *continued* to rise. There is but one conclusion. We must press the offensive under the new anti-inflation legislation.

I do not feel that it is too much to suggest that no single group be exempt from the demands of war. Nor do I feel that I am being unfair to the farmer—or the wage earner—when I say that this war has so far not demanded from these groups what it will—and must—demand if we are to win. Again I say, are we out to win this war or to profit from it?

Does that mean that the farmer and the wage earning group alone must accept these sacrifices? By no means. Corporations—big and small—must also accept the necessity for reduced incomes both for their stockholders and for their officers. If we are to win this offensive, there must be further cuts in corporate profits. A program which is fair—a program which calls for equality of sacrifice—demands that the profits of business, accruing either to individuals or to corporations, must, through taxes, be cut back into line with increases in farm prices and in wage payments to workers.

We must have widespread, wholehearted and complete compliance with price regulation, with rent controls, with rationing—compliance not *only* with the letter of regulations but with the spirit of them. No law is proof against man's ingenuity if he goes to work to evade it. No law is foolproof unless it is backed by the determination of a whole people. I have always insisted that Americans as a whole have been—and are—convinced that defense of the home front through price regulation, rent control, and rationing are vitally necessary measures. Yet I know, and you know, that there are some among us who still either are not convinced that the program is necessary or who feel that technical compliance is enough. There are some among us—the gasoline gougers, the petty bootleggers of tires and the nickel hungry price chisellers—who are placing their puny profits above the expressed will of the majority. It is time that all of us now join in the offensive against them. It is time that we call them to time.

Does this seem little? Perhaps it does. But think of it this way. Battles themselves are not won by individuals but by the united effort of the many. Our battle on the home front—our war—will be won in the same way—not by any single individual but by the united effort and united determination of all of us to follow through—even unto the least of the things that are demanded of us.

Civilians in the War

by

James M. Landis

Director, U. S. Office of Civilian Defense

THE complicated machinery of modern warfare is calling for more and more of the world's "population-power." Men, women, children in every nation—in those which have not felt the impact of enemy invasion or air attack and in those which have—are being drawn into the conflict in increasingly active roles. Military and civilian forces are complementing one another as never before, and in America the time is not far away when almost every citizen will have a clear-cut war job, a well-defined responsibility.

Modern warfare's first rule is *organization*—swift, thorough, all-embracing. This rule applies as completely to civilian as to military action, and in nation after nation where active warfare is waged organized civilians are sharing honors with the military.

America has learned much from the experience of its Allies and is steadily perfecting its civilian organization against enemy attack which may bring war to these shores.

Organized Civilian Defense in America did not begin with Pearl Harbor. As long ago as May, 1940, before the invasion of France, President Roosevelt approved a National Defense Advisory Commission. In August, 1940, the President created the Division of State and Local Cooperation, carrying civilian war preparation directly to the communities of the nation. On May 20, 1941, still half a year before Pearl Harbor, the present Office of Civilian Defense, created by the executive order of the President, had a fully defined program for meeting the increasingly immediate threat of war. Almost immediately, the rush of volunteers overtaxed defense enrolling and training facilities, and when the enemy struck at Pearl Harbor and the Philippines, millions more came forward.

There are now approximately 11,000,000 enrolled and trained volunteers in all of the many divisions of the Civilian Defense organization. These volunteers give most of their spare time to war work, under the direction of local Defense Councils in 11,000 American communities.

The Office of Civilian Defense has always been an advisory and coordinative body, a source to which state and local councils could turn for advice on the problems of organization as well as the proper defense methods and equipment. The problem of civilian defense is a civilian problem and civilians are engaged in its solution. Local communities are formulating and executing their own

plans with the advice, counsel, guidance and encouragement of Washington.

The Office of Civilian Defense sets forth a program of protective measures for American

volunteer army must be kept so organized that it can be called upon by other federal agencies to give immediate and sustained impetus to the war activities in all the communities of the nation.

At the outbreak of the war, the first task of Civilian Defense was to expand the machinery of civilian protection, to enlist and train air raid wardens, auxiliary firemen and policemen, emergency medical units, and all the other units of the protective services which are part of the U. S. Citizens' Defense Corps. This protective program is now well underway.

In February, 1942, an appropriation of \$100,000,000 was made available by Congress to provide equipment to communities in "target" areas on a loan basis. As a result, many types of equipment are being distributed by the United States Office of Civilian Defense. The manufacture of these articles, in some cases requiring months of planning and work, is far along. For example, 18,000 pumping units of 500-gallon permanent rating are being distributed to municipalities

for the use of local fire departments, together with pumping hose and other fire supplies. Armbands, medical kits, gas protective devices, are being or have been distributed by the Office of Civilian Defense just as fast as the huge quantities that are needed can be manufactured. The OCD also recommends or approves many other items of equipment which it does not buy outright, but which State and local Defense Councils may purchase with every assurance that these items are suitable for the designated purpose.

The various units which make up the protective branch of Civilian Defense now have a total enrolled membership of over five and a half million civilians; and, while much remains to be done in perfecting organization, the foundations are well laid.

The second chief responsibility of the Office of Civilian Defense is to "promote activities designed to sustain the national morale and to provide opportunities for civilian participation in the defense program."

All such civilian war service activities are carried on under the general sponsorship of the U. S. Citizens' Service Corps. Our own individual and national well-being are linked with the solution of problems arising directly or indirectly as a result of the war and the pressing necessity to speed all war production. With the understanding and the help of the people, bottlenecks on the home war front

(Continued on page 174)



Some of the tools used in civilian defense work. In the foreground is an outlet junction box, which distributes electric current from an Emergency Service truck over a wide area. Then there are floodlights, all sorts of fire fighting tools and equipment to combat gassing of civilians. Power drills, and saws, a ten ton jack, an acetylene burning outfit and even portable field telephones are included, all of which is carried in the Emergency Service Truck in the background. Below Director Landis of the OCD.

OEM Photos



communities, to meet the danger of enemy air raids. It also considers proposals, suggests plans and promotes activities designed to sustain the national morale and provide opportunities for civilian participation in the war programs of other federal agencies. Our

The Coast and Geodetic Survey's Part in the War Effort

by
Rear Admiral Leo Otis Colbert

Director, U. S. Coast and Geodetic Survey

EVERY resource of the U. S. Coast and Geodetic Survey is fully devoted to the war effort.

That simple statement might well exhaust the subject indicated by the title of this article, particularly in these days when actions take priority over words. Nevertheless, everyone concerned with this war, that is, every citizen of the United States and of the United Nations, is entitled to know the efforts being made insofar as such information does not violate the discretion imposed by war conditions.

The functions assigned by law to the Coast and Geodetic Survey are as vital to the prosecution of a war as they are necessary to the commerce and industry of peace. This was recognized when the Survey was assigned an important role in the National Defense Program. Consequently on December 7, 1941, the Survey was prepared and began active participation as an adjunct to the armed forces.

The production of nautical and aeronautical charts is, perhaps, outstanding among Survey activities significant to the war effort. The surveying and charting of United States coastal waters has been a basic function of the Bureau since its inception in 1807. The task of charting the nation's airways was added in 1926. The year 1941 found the Survey producing over eight hundred different nautical charts of the coastal waters of the United States and its possessions, and over one hundred different aeronautical charts blanketing the forty-eight States and Alaska.

The inauguration of the National Defense program brought an immediate and substantial increase in the needs of the Army and Navy for these charts which have continued to grow at an unprecedented rate. For some years there had been a steady increase in sales of charts to the public, until in 1939 normal distribution reached a total of some 716,000 copies; the largest issue of charts, up to that time, for any single year in the Bureau's history. In the fiscal year 1942 over 3,500,000 charts were distributed while, from present indications, requirements for charts during the present fiscal year will be well over 5,000,000 copies. A considerable number of special nautical charts have also been constructed for naval use and the Bureau has undertaken extensive new programs of aeronautical chart construction for the air forces.

The impact of actual war created a situation without parallel. Immediate delivery of large quantities of certain charts required for the movement of ships and air forces into strategic areas was necessary. Survey employees, working night and day, met this

crisis and overcame many obstacles in fulfilling this urgent need of the armed services.

Since December 7, 1941, the Chart Division, responsible for the production of nautical and aeronautical maps and charts, has expanded its personnel and equipment to several times its normal size. New presses and equipment have been added to the reproduction plant to increase the output. To expedite compilation work and, at the same time, to further the policy of decentralization, chart compilation units have been established in other cities. This enables the Bureau to tap other sources



of skilled draftsmen who might not otherwise be recruited for this important work.

Chart production, however, is only one phase of the Survey's work related to the war effort. Another major function is the extension of the great horizontal and vertical control works of the United States upon which all precise mapping is based. These networks, which reach into every part of the country and are connected to similar networks in Canada and the Republic of Mexico, were begun over a century ago along the Atlantic coast of the United States.

In considering the needs of National Defense the War Department has defined several strategic areas throughout the country where new maps or revisions of old maps are urgently needed. To secure these a Defense Mapping Program was organized in which several map-making agencies of the Government are cooperating. It is now generally known as the War Mapping Program.

The Coast and Geodetic Survey was as-

signed two very important functions in this program. In the priority areas determined by the U. S. Army Engineers there was need for more control surveys. As soon as the program was under way several large Coast and Geodetic Survey parties were organized and working in these priority areas, carrying out the necessary control surveys and incidentally extending the control networks. In addition, the mapping of certain areas was assigned to the Bureau and the work of surveying, air photographing, and the construction of precision equipment to expedite the task is well advanced.

Information about our extensive coastal waters and coast lines is necessarily vital to defense in time of war. This has tremendously increased the importance of other regular duties of the Coast and Geodetic Survey, notably, the observation and prediction of tides and currents and the preparation and publication of Coast Pilots and their Supplements.

The heights to which the tides rise and fall and the direction and velocity of currents are important to all navigation and particularly to naval operations where so many different types of craft are involved in necessary maneuvers. The Coast and Geodetic Survey has developed methods of predicting, with the highest degree of accuracy, the day by day tide stages in all important harbors of the United States and possessions for years in advance. In like manner currents affecting navigation of coastwise sea lanes and approaches to harbors are predicted. These are compiled into tables and each year the predictions for the year to follow are published in book form. Current charts of some important harbors are also issued from time to time. All of these are in great demand by the Navy and the Merchant Marine as evidenced by increased orders and the need for many reprints.

All mariners cruising along our coasts rely upon the United States Coast Pilots for general information on the aids to navigation, conformity of the shoreline, hazards, landmarks, condition of harbors and anchorages, etc. Information in these books is continuously brought up to date by publication of frequent revision necessary and the Survey is the issue of more supplements and new editions of the Pilots. Requirements of the Navy and Merchant Marine have made it necessary to publish thousands of extra copies.

The Coast and Geodetic Survey is performing
(Continued on page 174)

Naval Ordnance

by

Rear Admiral W. H. P. Blandy, U. S. N.

Chief of the Bureau of Ordnance

THE term naval ordnance, originally confined to the smoothbore guns, black powder and round shot of the sailing days, now covers a wide variety of weapons, devices, and ammunition, used not only on the surface of the sea, but hundreds of feet below it and thousands of feet above it.

Naval guns today range from battleship main battery guns, weighing more than a hundred tons each, to aircraft machine guns weighing less than a hundred pounds. Gun-fire control has progressed from "sighting down the line o' metal," which was good for perhaps 200 yards range, to indirect fire methods and instruments effective at 40,000 yards.

Our heavy anti-aircraft guns and their control systems must be able to bring down level bombers flying miles above the sea, or at least keep them up at inaccurate bombing altitudes. Lighter, automatic anti-aircraft guns must stop dive bombers and other close-flying airplanes in a matter of seconds after they come within range.

Torpedoes, which might very properly be called "miniature no-man submarines," must generate their own power, convert it to motion, control that motion in two planes, and detonate an explosive charge against the target, all without human help after leaving the tube or rack.

Bombs and bombsights, armor and projectiles, powder and fuses, depth charges and mines—all are included when we speak of "naval ordnance" in 1942.

The agency responsible for the design, production, issue and maintenance of naval ordnance in this country is the Navy Department's Bureau of Ordnance, which was established one hundred years ago as the Bureau of Ordnance and Hydrography. This bureau works in close cooperation with the Bureau of Ships and the Bureau of Aeronautics, as it must arm the ships and planes produced by those bureaus. It also provides a large part of the weapons and ammunition for the Marine Corps; arms merchant ships and Army transports; and produces many millions of dollars worth of ordnance for the navies and merchant fleets of our Allies.

The materials needed for this vast and widely varied assortment of equipment range from silk to steel; the processes, from the carburization of face-hardened armor to the grinding of lenses and prisms. The bureau must include officers and civilian technicians skilled in metallurgy, chemistry, interior and exterior ballistics, hydraulics, mechanics, electrical engineering, optics, machine shop practice, statistics, office and per-



sonnel management, and all phases of operating gunnery in every type of surface vessel, aircraft and submarine.

In addition to these technical skills, there are many legal and financial problems which the officers of the bureau itself must handle, though many of these are dealt with, respectively, by the Judge Advocate General's Office

and the Bureau of Supplies and Accounts.

Like all other organizations involved in the war effort, the Bureau of Ordnance has faced a tremendous increase in workload with a corresponding growth in personnel, during the past two years. From an average total annual appropriation of little more than a hundred million dollars for the five years ending in June 1940, the funds at its disposal for the present fiscal year exceed five billion dollars, an increase of nearly 5,000 per cent. The most active year of World War I, 1918, saw the Bureau of Ordnance handling little more than five hundred million dollars, only one-tenth the present load, and less than Lend Lease funds alone for the present year.

The personnel has increased accordingly, though of course not proportionately. From 32 officers and 173 civilians in 1938, the total now comprises 713 officers and 1,563 civilians. Only 12% of the officers are on the active list of the regular Navy. Eight per cent are retired regulars. The remainder are reserve officers, carefully selected. They are rendering loyal and highly efficient service.

This great upsurge required a reorganization of the bureau. The former organization, while eminently suitable for the relatively small peacetime load, and with only a few officers available, was inadequate to cope with an expansion of 2,000 per cent in personnel and 5,000 per cent in volume of material produced. There was no one other than the Chief and the Assistant Chief to coordinate the many sections in their various func-

tions. And this coordination became more and more necessary as more contact with outside agencies, such as the Office of Production Management, (W.P.B.) Army and Navy Munitions Board, National Defense Research Council, etc., was required. These contacts, as well as the increased internal work of the bureau, required collective supervision over the general functions common to most of the sections. Manifestly, the two senior officers could not personally exercise all of this direct supervision.

A modern type of functional organization was therefore introduced by the present Chief of Bureau upon taking charge in February 1941. As finally evolved, the new organization contains six major divisions. Administrative; Planning and Progress; Financial; Research and Development; Production; Maintenance and Supply. Each is directed by a captain, with full authority to handle the affairs of his division, receiving major directives from the Chief and his Assistant, and reporting to them on matters of major importance.

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U. S. Navy Photo

The Navy's Business

by

Rear Admiral William Brent Young, (SC), U. S. N.

Chief of the Bureau of Supplies and Accounts and Paymaster General of the Navy

SECRETARY of the Navy Knox has said: "This is a war of supply."

Even the most casual onlooker must become increasingly aware of that fact in contemplation of the problems involved in supplying food, fuel, clothing and other necessities of war to our fighting forces scattered all over the world.

The Bureau of Supplies and Accounts, as the business administration arm of the Navy, is also its central purchasing agency. Few people realize that the principle of centralized procurement of material in the Navy is as old as the Bureau itself—100 years.

Application of the dollar index alone gives a quick picture of the magnitude of the job now being done. The dollar value of contracts awarded by the Bureau in just one month of this year was three times larger than the total volume of contracts made during the whole period of World War I.

The Bureau of Supplies and Accounts, during this particular month, purchased more than \$2,344,000,000. In the twenty month period of the World War I from April 1917 to December 1918, Navy purchases by the Bureau totalled \$788,255,666.

The importance of supply is evident even to the rawest recruit. It is the responsibility of officers of the Supply Corps to look ahead—to keep looking ahead in order that uniforms may be turned out in required quantities at the Naval Clothing Factory in Brooklyn, New York, and by the large number of clothing manufacturers under contract with the Navy.

In fact, the Bureau must always keep out in front of the well coordinated plans for expansion of our vast naval establishment.

In this war, logistics seems destined to write the final verdict. We not only have supply ships, tankers and tenders doing a vital job in the seven seas but a system of coastal and inland depots to service our fighting fleet.

The idea of inland supply depots cannot be said to be entirely new. I can recall they were discussed frequently during the last war. The system was launched early in this year, however, and is due to be completed shortly. The Naval Supply Depot at Mechanicsburg, Pa., was commissioned only a few weeks ago and

will soon provide 7,000,000 square feet of covered storage space for vital materials.

The objective is greater logistic flexibility. It is unsound and unnecessary to provide tre-

predictable exigencies of war as extraordinary demands arise from different theaters of operation. All are located near rail and highway facilities in strategic position

to rush needed supplies to coastal points for loadings or overhauls.

The intricacies of supply and its part in the essential pattern of strategy is well illustrated aboard the modern cruiser where the Supply Corps officer, aside from his commissary and disbursing duties, is charged with the storage, accountability and issue of not less than 12,000 separate items.

Aircraft's heavy role in global warfare has added to problems afloat. Space must be found for the convenient storage of motor and other technical parts which probably were not even developed at the time of launching of many of our dominant fighting ships.

I am convinced, having recently returned from an active theater of war, that the supply officer on an aircraft carrier is probably one of the busiest persons aboard ship. The supply officer's daily battle is to combat the many problems of a "war of supply."

Feeding the Fleet is a major concern of the Supply Corps. We buy, transport, store and prepare everything the sailor eats. As the war progresses to the remotest parts of the world, and wilderness areas in the United States are cleared over-night to make way for training centers, housing 30,000 and more men, the Navy's reputation as the best fed body of men in the world seems to grow.

The experiments, which the Bureau had fostered with the dehydrated food industry, over a period of years, fortunately came to a most satisfactory stage of development just about the time of Pearl Harbor. Practically the entire output of this industry has been taken over for use by the fighting forces. Vessels are able to stay out for longer periods due in large measure to supplemental use of the dehydrated products.

New methods for the storage of food and all other items of supply are being devised every day. The problem is always, how to carry more in less space. Logistics relies heavily on the stores ships, the stores issue ships and cargo ships of the Navy.

Procurement of fuel and its transportation is another responsibility of the Bureau of

(Continued on page 172)



Gangway for Food! Sailors toting cases of supplies up the gangplank of a warship past the watchful eye of a Supply officer. Later the food will be inspected and stowed below. Lower: Rear Admiral Young, Chief of the Bureau of Supplies & Accounts.

U. S. Navy Photos



mendous storage facilities and a wide range of materials at every port. The coastal depots stock for normal demands but the network of inland reservoirs is designed to meet the un-

The Quartermaster's Role in a Nation at War

by

Major General Edmund B. Gregory

The Quartermaster General, U. S. Army

WORLD War No. 2, in which the United States is now a belligerent, is being fought on all oceans and all continents. It involves globe-girdling supply lines constantly facing relentless assault.

Putting it another way, this is "a Quartermaster's war," to quote the famous military writer, Hanson Baldwin. Nazi General Ravenstein described it even more colorfully when he declared "it is paradise for the tactician but Hell on the Quartermaster."

Our job right now is to furnish food, clothing, equipment and general supplies to the Army no matter how large it may grow and no matter how far away its troops may be stationed. A glance at the food schedule alone is sufficient to show just how big a job we are facing. We have to furnish about 20 million pounds of food a day for actual consumption, to say nothing of what we procure and store for future contingencies.

Back of the supply lines we are building there is a procurement program of staggering proportions. We are buying in terms of millions of articles and billions of dollars. Millions of cubic feet of storage space in our depots hold Army supplies. The Quartermaster Corps is the world's greatest clothier; it's the best customer of the American farmer, and by far the biggest purchaser of hardware, kitchen equipment, canvas and a score of other essential items. We are buying horses, helmets, snowshoes and mosquito netting, to give an idea of how diversified a field we

cover.

Recently we placed orders for 421,000,000 yards of cotton and wool cloth—probably the



largest single cloth order in Army history. We are teaching more than 70 different trades to Quartermaster soldiers, and wherever troops are stationed we have a Quartermaster organization. These and kindred develop-

ments are only small factors in the far-flung Quartermaster Corps set-up.

Today, as in the past, the pattern of war is determined largely, if not entirely, by supply systems. The nation with the best supply system survives. Conquering nations have risen to domination through the medium of carefully planned services of supply; many of them lost that domination when rival countries surpassed them in this vital function.

For hundreds of years the Romans held back barbaric hordes that constantly threatened their far-flung border. They had a superb supply system, that helped them beat off the Carthaginian invader, Hannibal, who finally succumbed when his own services of supply failed.

The Roman empire collapsed when its elaborate supply system was allowed to dwindle away, making it easy prey for the marauding Goths and Huns. Chaos reigned in Europe for generations until the canny Cardinal Richelieu made France the greatest nation in Europe. Mindful of the vital role of the supply system, Richelieu developed magazines and depots stored with military supplies in strategic sections. His foresight made it possible for France to place well equipped armies in the field at vital locations far ahead of any opponent.

The success of this plan was ignored by Napoleon who lost his army and eventually his
(Continued on page 172)



U. S. Army Photos

Two Quartermaster functions close to the heart of every soldier are its duties in connection with the procurement and distribution of food and clothing. The various uniforms shown above, are, left to right, soldier's winter dress, nurse's winter uniform, tropical battle dress, nurse, Armored Force, Paratrooper, and another nurse.

West Point at War

by

Major General Francis B. Wilby, U. S. A.

Superintendent, United States Military Academy

THE attack on Pearl Harbor on December 7, 1941 found the Military Academy preparing itself for the conflict which had seemed to many people an inevitable result of the policies being followed by the Axis states, including Japan. While few had expected the United States to be plunged so precipitantly into a major war in both the Atlantic and the Pacific, the transition from a peacetime basis to a wartime program was rapidly brought about at West Point. The change having been foreseen, the necessary steps were rapidly taken.

During the 140 years of its history, approximately 12,000 cadets have been graduated from the Military Academy. Of this number approximately 7,500 are on active duty with the United States Army today, serving their country throughout the world. This represents a far greater number of graduates than had ever before been available in any of the previous wars in which our country has been engaged. This fortunate condition is due to the fact that since the last war the size of the Academy has been greatly increased, and these graduates have been able to carry on the mission of the Military Academy which has remained unchanged since West Point was founded in 1802. Trained in the ideals of West Point, which are so well set forth in the motto of the Military Academy—"Duty, Honor, Country"—her graduates have carried the spirit and tradition of the Military Academy into the Regular Army, and from there into that larger force "The Army of the

United States"—which is being so rapidly organized and trained for victory.

In the years preceding the war, it became apparent that the Reservation at West Point was not sufficiently extensive to allow for the development of necessary training facilities such as rifle, machine gun and artillery ranges and other installations required for tactical



Bachrach Photo

instruction which became necessary with the rapidly changing methods in the art of modern war. During this time the Reservation has been increased in size from a little over 3,000 acres to nearly 14,000 acres including the rugged terrain to the west and southwest of West Point itself. This land has already been developed into excellent combat ranges for the firing of small arms, anti-tank guns and light artillery pieces. A cadet camp has been built at Popolopen Lake to replace the old summer camp on the Plain. Each Cadet spends several weeks during the summer at this camp where his time is spent in firing practice and instruction with all of the latest weapons.

At the same time that it became apparent that the Reservation had become too small, the War Department realized that flying training must become an integral part of the curriculum for those cadets who are physically qualified and who elect to prepare themselves for a commission in the Air Corps. Stewart Field, lying a few miles to the west of the City of Newburgh, had been presented to that city by the Stewart family as a municipal airport. Realizing that it was the most suitable ground in the vicinity, the City of Newburgh turned over the original acreage

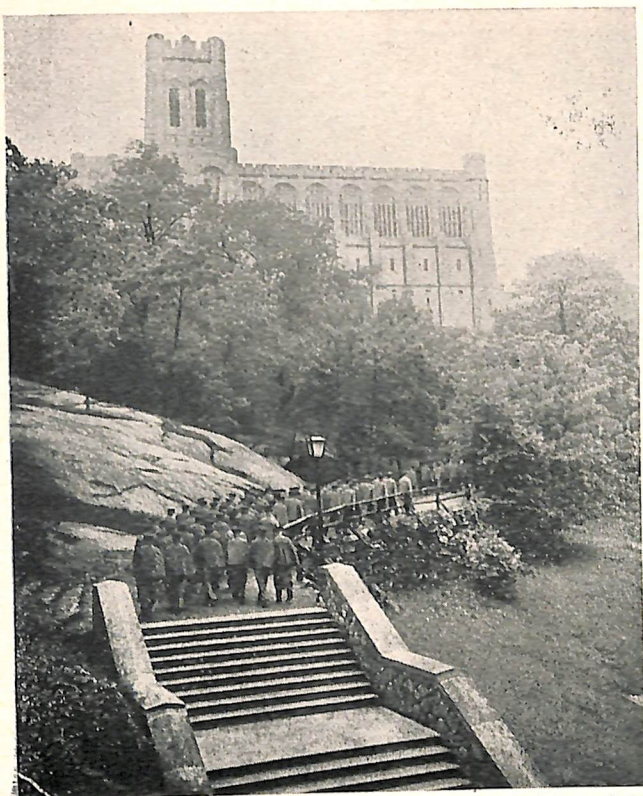
of Stewart Field to the Military Academy. To the original piece of some 220 acres was added over 1,000 additional acres. During the past summer this ground has been levelled, barracks, warehouses, hangars and other necessary installations constructed by contractors working on a 24-hour basis until on August 25th Stewart Field was formally dedicated as an Air Force Basic-Advanced Flying School and a component part of the Military Academy. Cadets who had during the early months of the summer taken primary training at other Air Force Training Centers returned to Stewart Field for their basic training.

In addition to this Field, three Auxiliary Landing Fields have been acquired in the immediate vicinity to provide for the necessary practice in landing and taking-off during student instruction.

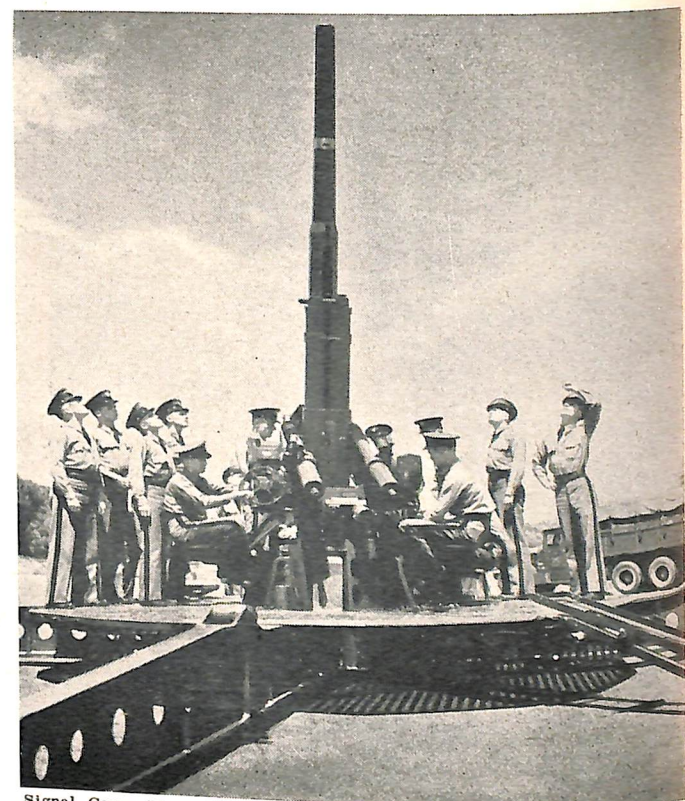
Today Stewart Field, the "Wings of West Point," is in full operation with flying instruction proceeding continuously.

To enable the Military Academy to make its maximum contribution to the growing Army, Congress decided to increase the size of the Corps of Cadets from its previous authorized strength of 1960 Cadets to 2496. This Act of Congress was approved on June 3 of this year and steps were immediately taken to increase the size of the entering class to bring the strength of the Corps to the newly authorized figure. The new class entered during the month of July with a strength of over 1100—the largest in the history of the Academy.

Following this legislation, it became apparent
(Continued on page 172)



Signal Corps Photo
Cadets marching to the historic old Cadet Chapel.



Signal Corps Photo
First Classmen train on 3-inch Antiaircraft gun.

The Naval Academy at War

by

Rear Admiral J. R. Beardall, U. S. N.

Superintendent, United States Naval Academy

TO meet the present war requirements, the United States Naval Academy at Annapolis has already accomplished the largest expansion program in its history. Keenly aware of its responsibility to the American people and to the Navy, the Academy is intensively engaged in its vital task of sending forth to the Fleet inspired young naval officers of the highest caliber. By condensing the regular four-year course to a three-year period, and by instituting a special school for Reserve Midshipmen, the Naval Academy during 1941 and 1942 commissioned 3,000 officers who were immediately made available for active naval service.

It is not nearly enough, however, to have achieved the largest annual number of midshipmen to be graduated and commissioned. More than ever before the emphasis has been focused on the positive development of thorough naval adaptability and trained, aggressive leadership in the individual graduate. While this same emphasis has long been the keystone of policy at the Naval Academy, it has now been carried forward to include the practical requirements and lessons that are being constantly acquired from our forces engaged in the War. To make available to those forces that type of responsible and alert young naval officer imbued with courage, devotion to duty, loyalty and trained initiative, possessing the stamina and fortitude to successfully meet the demands of this War, is the sole mission of the Naval Academy.

The transitional period from the four to three year program was successfully completed in June, 1942. Being accelerated rather than reduced, the present course includes approximately 96% of the academic and theoretical study previously covered, with no appreciable loss in the purely professional subjects of ordnance, navigation, seamanship, tactics, electrical and machine engineering.

Careful study and attention is devoted to the vital subject of naval aviation and its



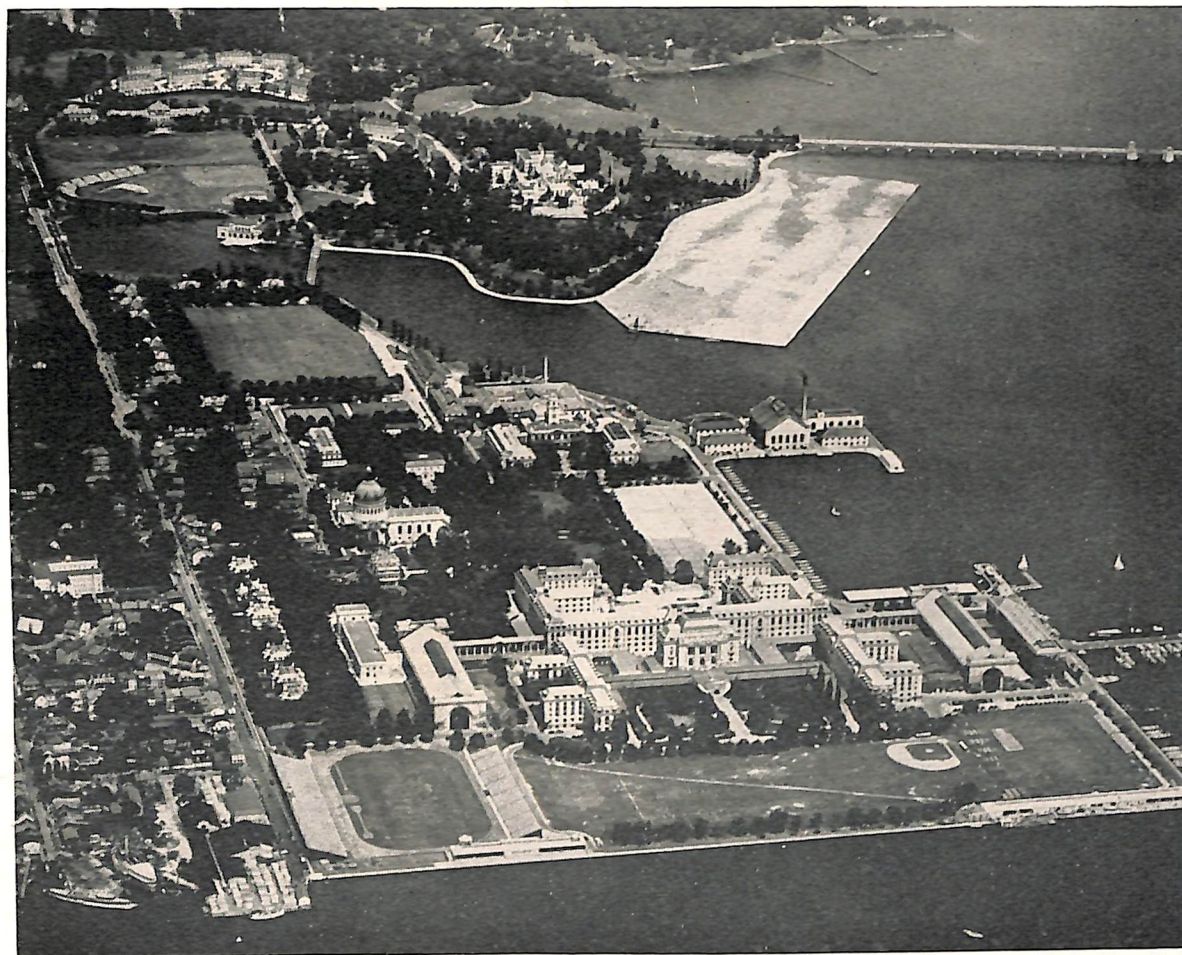
influence on modern war. A training squadron and a well equipped hangar are main-

of flight and air tactics are covered as subjects in the academic course. New developments and the prevailing and potential functions of naval aviation are presented in an extensive lecture course. The fundamentals of engine maintenance are included in a modified ground school course, and thorough instruction is received in radio and communications procedure. The possibility of further augmenting aviation instruction and training at the Academy is now being studied. With the curtailed course as now scheduled, it is not practicable to properly qualify midshipmen as pilots, particularly since this can be accomplished to greater advantage following their graduation. It is, however, of the greatest importance that those who are to be the active leaders of our fighting forces thoroughly comprehend that victory in war can be gained only by the intelligent coordination of all weapons.

It has been necessary to eliminate the summer practice cruises at sea, due primarily to the fact that all seagoing vessels of the Navy are now required for war operations. This change, while not desirable from the standpoint of midshipman training, did permit the

academic course to be better revised in that the summer months are now partially utilized for theoretical study. Every effort has been made, however, to cruise the midshipmen on smaller vessels within the waters of Chesapeake Bay. Each third classman cruises during the summer on patrol boats and subchasers for a four weeks' period. While the value of seagoing training is certainly not to be overlooked, cruising on these patrol craft does permit the midshipmen to be given greater responsibility and to become more familiar with actual ship handling, tactical principles and maintenance.

Of particular importance is the greatly enlarged physical training program now in effect. In addition to regular athletic drills and the minimum
(Continued on page 172)



United States Naval Academy, Annapolis, Md., looking from North West.

U. S. Navy Photo

tained at the Academy for the purpose of indoctrinating midshipmen, and to assist in local security. Aerial navigation, the theory

The Coast Guard Academy at War

by

Rear Admiral James Pine, U. S. C. G.

Superintendent, United States Coast Guard Academy

WITHIN the memory of many officers in the Service the Coast Guard Academy has grown from a school aboard ship to a full fledged engineering college.

The growth of the Academy during the 66 years of its existence has paralleled that of the Coast Guard. For a number of years prior to the outbreak of the present war need of the Service for officers was met by a cadet enrollment of about 150. With the additional duties assumed as a result of enforcing the neutrality laws it became necessary to provide for filling the vacancies in the commissioned grades, which in 1939 amounted to 300, as soon as possible. In that year 125 cadets were appointed instead of the usual 50 to 60 and subsequent entering classes were set at 150. This provided for a total enrollment of 400.

Upon the declaration of war the demand for additional officers became immediate. The First Class was accordingly graduated and commissioned on 19 December 1941. The four-year course was reduced to three years; the curriculum was completely revised to permit the Second Class to graduate the following June and subsequent classes to graduate after three years at the Academy. While some subjects have had to be reduced in this realignment, the basic engineering and professional subjects have been retained. By continuing studies throughout the year the three-year course contains about 85% of the former four-year course.

In order to provide an immediate source of officer supply a four-months' reserve training class open to college graduates between the ages of 20 and 30 years was established. The first class of 200 reserves was admitted last February. Subsequent classes of 75 each entered in April and May. On July 1st this number was raised to 150, and beginning in August was increased to 250 a month. This monthly quota will be raised to 300 by January 1943.

The Academy's present buildings, which were completed in 1932, were designed to accommodate 208 cadets. This capacity has been increased to 312 by additional construction and can accommodate 400 or more with a little crowding.

In order to take care of a total of 1,200 reserve cadets temporary buildings on land adjoining the Academy are now under construction. Pending their completion some 600 reserves are temporarily housed at the Groton Training Station

across the river from New London.

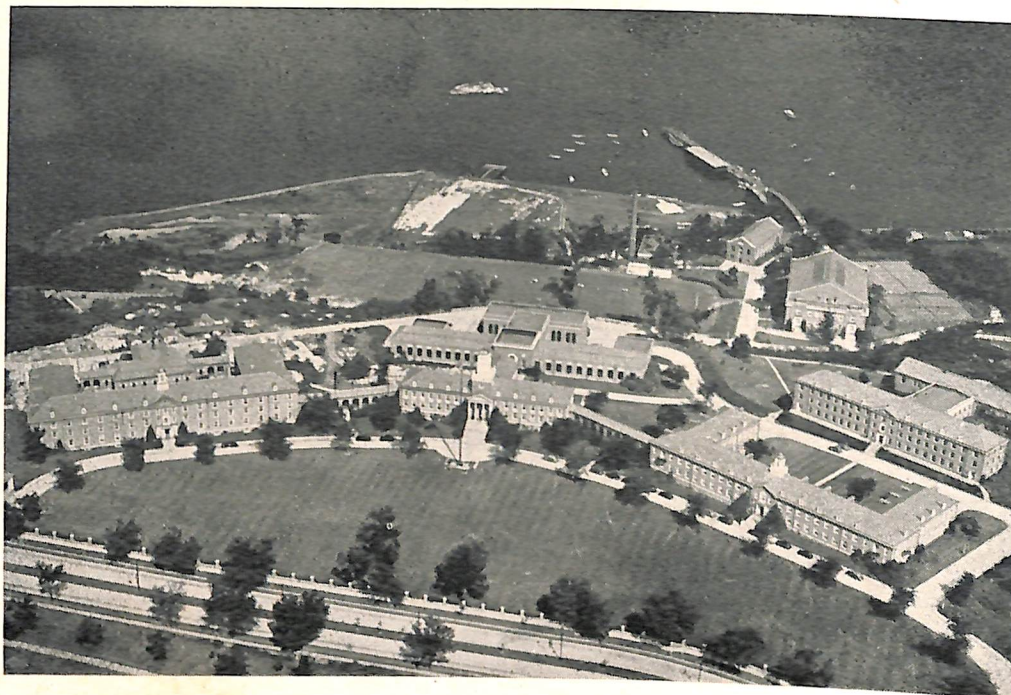
Since 1939 there has been no further expansion of the regular cadet program; all efforts have been concentrated on the four-months' course for college graduates. This course consists of one-month's preliminary training as



apprentice seamen. Those who complete their training satisfactorily are appointed reserve cadets for a further two-months' period. The final month is devoted to anti-submarine tactics in patrol boats and to a cruise aboard the

Aerial view of the grounds and buildings of the United States Coast Guard Academy, New London, Conn.

U. S. Coast Guard Photo



sailing ship DANMARK and the schooner ATLANTIC for those who cannot be accommodated on the patrol boats.

At present all reserve cadets are trained for deck duties. Those who have a background of engineering training in college are sent to the Navy Diesel Engineering School at Cornell after graduation for further engineering work.

The preliminary term includes practical work in Seamanship, Small Arms, Signals, Tactics and in Physical Drill. The aim is to develop a military bearing and attitude and to determine the candidate's aptitude for the Service. A short Mathematics review, indoctrination in Coast Guard methods through executive, engineering, and hygiene lectures supplement the practical instruction and prepare the students for the two-months' academic term.

In this term more time is spent in classroom work; to the course in piloting is added instruction in Celestial Navigation; Ordnance and Gunnery replace Small Arms work; the Signals course is expanded to include Communications; lectures in Law and Maritime Economics are added.

Classroom instruction and practical work total 40 hours a week. Week-end cruises provide a useful form of recreation.

The results of the combined program have been excellent. Within two weeks after Pearl Harbor 30 regular cadets of the class of 1942 were graduated and ordered to sea. Six months later an additional 72 cadets of the Class of 1943 were graduated together with 176 of the February Class of reserves. The April Reserve Class of 63 was graduated on August 25th; the May Class of 55 on September 19th; the July Class of 116 on October 27th; the August Class of 210 on November 25th and the September Class of 241 will graduate on December 22nd. Early in 1943 with a program of entering classes of 300, with monthly graduation, the Reserve Cadet School will be in full production.

The advantages of having the reserve cadets at the Academy where they live and study together with the regular cadets are apparent. They have the use of the facilities provided; the officers regularly assigned as instructors are available for their instruction. Finally, but most important of all, they quickly absorb the tra-

(Continued on page 166)

Science and the Navy

by

Rear Admiral Julius A. Furer, U. S. N.

Coordinator of Research & Development, U. S. Navy

THROUGH the application of science man is constantly increasing his mastery over the forces of nature, but he is as likely to use his newly acquired knowledge for evil as for good. In fact, progress in the field of the natural sciences has often been stimulated more by the necessities of war than by those of peace. For example, the introduction of artillery into European warfare in the fourteenth century created a new kind of mathematical problem—the calculation of the position of bodies moving swiftly through the air to great distances. The geometry of Euclid and the simple algebra of the Arabs did not suffice to solve this problem, so new forms of mathematics had to be invented. It is, therefore, not a very great stretch of the truth to say that modern mathematics has its roots in the need of men during the Middle Ages to calculate the trajectory of a cannon ball.

New conceptions as to the best methods for exploring the mysteries of nature appeared with the broadening of the mathematical field, and this led in turn to what is commonly known as the scientific approach to all such problems. It is, of course, a very far cry from the blind gropings of the men who first tried to predict where a round stone would fall when fired from the simple cannon of that day to the well-charted route which the modern scientist follows in attacking the research problems of this day, but the approach is the same in principle.

The extent to which the scientist is participating in the war effort of today is enormous as compared to his participation in the wars of the past. This is scarcely surprising, because in all fields of human endeavor scientific participation has increased at an astonishing rate, especially during the past twenty years. Such participation is now the commonplace rather than the unusual.

Fifty years ago there were practically no research laboratories in the United States. Thomas Edison was working on inventions in his private laboratory following the "use every bottle on the shelf" method and incidentally getting some very good results. Thousands of other inventors were working as individuals on all manner of gadgets from bent hairpins to horseless carriages. The professors at a good many colleges were delving into this and that field of science, but the physical and chemical laboratories of academic institutions were still used principally for the teaching of students. Private industry was just beginning to employ as draftsmen the graduates in mechanical engineering from the few colleges that provided such courses. The employment of chemists to analyze for acceptability the few materials that were being purchased according to specifications was only just getting underway. The use of physi-

cists by private industry still lay far in the future, and there were practically no industrial laboratories carrying on organized scientific research. Today there are about 2,000 research laboratories in the United States employing over 70,000 trained workers. Only a very small percentage of these laboratories were in existence at the time of World War I. Full realization of the value of the scientific method in solving material problems may be said to have come about during World War



I as the tremendous growth in the number and size of such institutions has taken place largely since then.

Among the few research laboratories in operation in the United States during the last decade of the nineteenth century was the Model Basin, built and operated by the former Bureau of Construction and Repair of the Navy Department at the Washington Navy Yard, although it was never designated as a research laboratory. It was established primarily to determine the best underwater forms for the hulls of war ships, but it has carried on a great deal of other research connected with warship construction. Some of the work done at the Model Basin in the past is now recognized as classic in the fields of naval architecture and marine propulsion. Merchant ships have reaped the benefit of this work although it was originally intended only to improve war ships. The new Model Basin at Carderock, Maryland, as the successor to the Washington Navy Yard establishment, is carrying on scientific work of the same kind with a constantly broadening horizon in sub-

jects involved in naval construction and marine propulsion. The plant at Carderock is probably the finest of its kind in the world and employs about 330 scientists and mechanics of special skill.

Some of the other scientific explorations conducted or sponsored by the Navy before the day of organized research laboratories were: improvements in explosives, armor, and naval guns; the substitution of steel for wrought iron in the construction of ships; the use of steel castings in place of forgings; research on the strength and water tightness of ships' structures, particularly when subjected to underwater explosions; artificial ventilation for ships; the fouling of ships' bottoms and the development of ships' bottom paints; deep sea diving and the investigation of the physiological effects resulting therefrom; research in various branches of marine engineering, and many others. Practically all of these contributions to knowledge have had applications to peaceful pursuits although developed originally to improve weapons or instrumentalities of war.

Much of this work was and is being done in naval establishments like the Navy Boiler and Turbine Laboratory, Philadelphia, which was started as a fuel oil testing plant in 1912, the Engineering Experiment Station, Annapolis, Maryland, and the various establishments under the Bureau of Ordnance, such as the Naval Ordnance Laboratory, the Torpedo Station, Newport, the Powder Factory, Indianhead, and the Naval Proving Ground, Dahlgren.

In 1915 the Secretary of the Navy established the Naval Consulting Board. This Board consisted of twenty-four eminent civilian inventors and scientists with Thomas A. Edison as Chairman. It was hoped that through this Board the best technological minds in the country would be brought to bear on the problems of national preparedness which were then coming to the front because of the war going on in Europe. There is no record that any great contribution in that respect was made by the Board, possibly because its members were devoting only part time to the work and only in a consulting capacity as implied by the name. The Board did, however, accomplish one important thing: it recommended the building of a Naval Research Laboratory. This laboratory was completed and started functioning in 1923. Since that time it has been very actively engaged in exploring many fields of science and especially the fields of electronics and acoustics. The laboratory has made some very important contributions to knowledge and to practical applications in these and other fields.

(Continued on page 168)

The Army Transportation Corps

by

Major General C. P. Gross

Chief of Transportation, Services of Supply, U. S. Army

THE Transportation Corps of the Service of Supply was created by the War Department "to coordinate, direct, and speed the flow of men, equipment, and supplies into the war effort." The Corps has taken over the functions of the Transportation Service, which was formed as part of the Services of Supply last March, and in addition has undertaken new and broader activities. The new Corps has an organizational status paralleling that of the Corps of Engineers, the Quartermaster Corps, and the Ordnance Department.

The mission of the Transportation Corps is to transport all the men and all the supplies of modern warfare to whatever destination they may be assigned. In order to properly execute its mission, the Transportation Corps has been delegated the authority to control all military shipments by rail, water and highway. In other words, all methods of military transportation except air (which remains under the Chief of Army Air Forces) come under the direct supervision and control of the Chief of Transportation.

The Chief of Transportation is in effect therefore the traffic manager of the War Department for rail, water and highway shipments of all types. In addition, he is responsible for and controls the operation of all field establishments pertaining to these forms of transportation. These establishments include ports of embarkation, port agencies, holding and reconsignment points and regulating stations. The agencies just mentioned have been set up by the War Department to coordinate and control all military movements.

Because of this excellent system of coordination and control the Transportation Corps has been able to (1) move troops and freight throughout the United States, (2) regulate the flow of troops and freight to the ports of embarkation, (3) move both men and freight

overseas, (4) provide the transportation units and equipment needed for operations in overseas theaters. These functions have been carried out with a minimum of disturbance to the other essential activities of the transportation system of the country.

The Transportation Corps has benefited



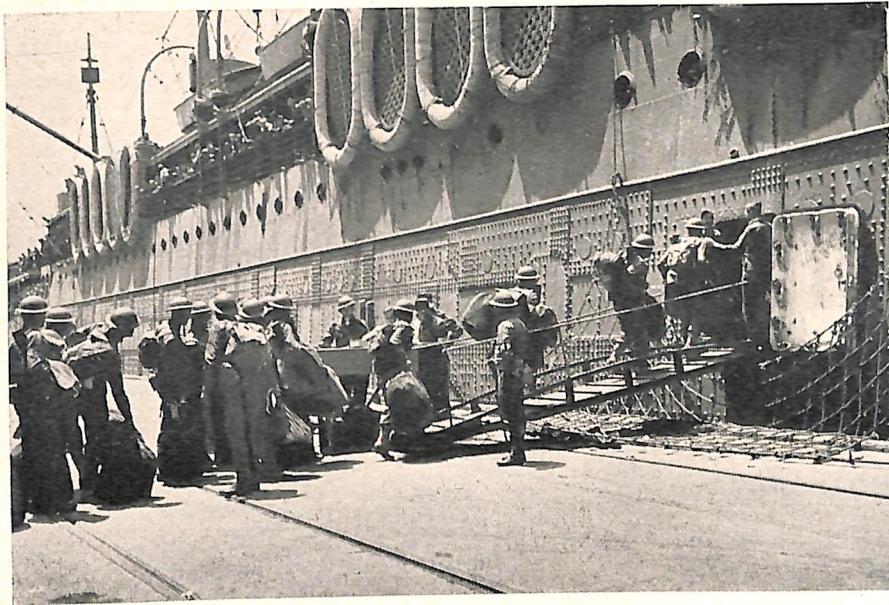
greatly in planning and carrying out its mission from the experiences of World War I when the transportation facilities of the country bogged down. Through lack of proper coordination and control in 1917-18 carloads of freight were permitted to pile up at one port where no ships were available, while at another port empty ships waited idle for cargo urgently needed abroad. Freight cars became storage cars and were so used

for months at a time, which naturally resulted in an acute shortage of rail freight equipment. As a result, the movement of freight both slowed down and piled up.

To overcome such difficulties as these, the present Transportation Corps, acting as the traffic management branch of the Army, has instituted a carefully planned traffic control system to regulate the flow of men, materials and equipment from camps, stations and factories to the ports of embarkation. This system of control has so far completely eliminated the bottlenecks of World War I. Today we have a systematically planned, well organized and smooth operating organization which plans, supervises, and executes all military movements from their inception to final delivery. That this is fortunate is proven by the nature of the present struggle.

Transportation is the number one problem of World War II. We are all familiar with the tremendous manufacturing possibilities of this country. However, few of us are familiar with the enormous transportation problem resulting from our production program. Moving the products from our thousands of factories to the ports of embarkation, from the ports of embarkation overseas, from the ports of debarkation overseas to points of final delivery for use, requires the movement of more traffic than was conceived of as possible some time ago. This tremendous movement naturally taxes every transportation facility at our disposal and every freight car, every truck, and every vessel must be used to its utmost capacity. This means more trips for freight cars and trucks between factories and inland storage depots and the ports—and more trips for cargo vessels from our ports to ports in the theaters of operation, where the supplies are turned over either to our own forces overseas, or to our Allies. This is the

(Continued on page 168)



The Armored Force

by

Lieutenant General Jacob L. Devers, U. S. A.

Chief of the Armored Force

THE youngest and hardest hitting arm of the Ground Forces is, perhaps, the least understood. It came into being only after the fall of France. On July 10, 1940, the War Department issued an Immediate Action Letter creating the Armored Force. At that time there were infantry tank units and mechanized cavalry; but no armored divisions, and the Tank Corps had long since gone out of existence.

One year later there were four armored divisions and several GHQ tank battalions; and on December 7, 1941, five armored divisions.

Today there are fourteen armored divisions.

In addition, there are approximately twice as many separate tank battalions; also, the Armored Force School, which graduates more technicians and officers than any civilian university in the world; the Armored Force Board, which tests all equipment used in the Armored Force; the Armored Force Laboratory, which tests both men and equipment, and the Armored Force Replacement Training Center, in which thousands of soldiers receive their basic training.

The Armored Force Headquarters is at Fort Knox, Kentucky; while in our western desert and in more than 15 camps in continental America, as well as in several theatres overseas, armored force units are being trained or are taking their part in this global, three-dimension war.

This suggests one of the miracles of expansion being wrought by the Army; and the closer one looks at this miracle, the greater becomes the wonder. Each of these divisions must have 75% of its men highly trained; and each has more guns than officers and men

put together. There is one vehicle, as an average, to each five men; also, there is one armored vehicle to each 10 men; yet only 15% of a division's personnel is required to man the tanks.



In addition to the tank units, there are armored infantry regiments, armored field artillery battalions, and engineer, reconnaissance, medical, quartermaster, signal corps and ordnance units.

Eight arms and services are welded into a compact, mechanized and armored self-sustaining organization, the firepower of which is twelve times as great as that of a triangular division.

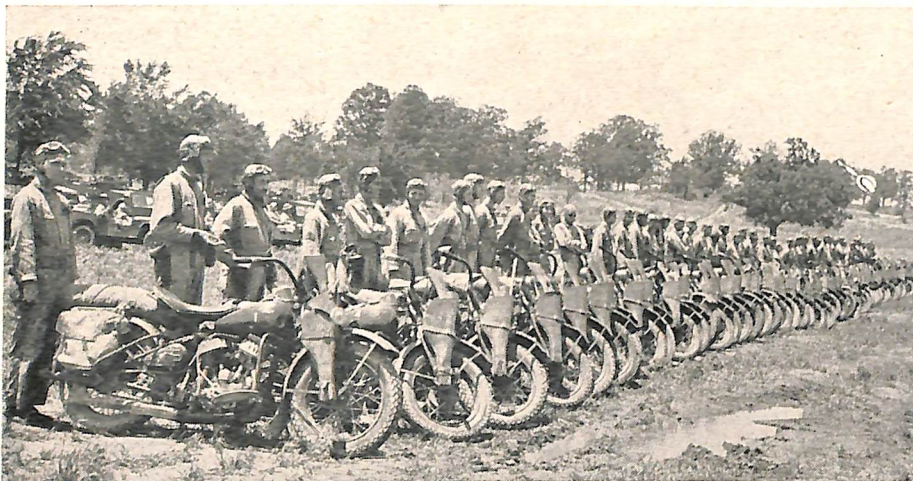
Units of the Armored Force have participated in the Philippine campaign, in battles

against Marshal Rommel, in the Libyan desert, and are now playing a major roll in the North African campaign. Men and officers have been tested under fire and in every instance, have displayed superior skill and courage in handling their armored cars and rolling fortresses.

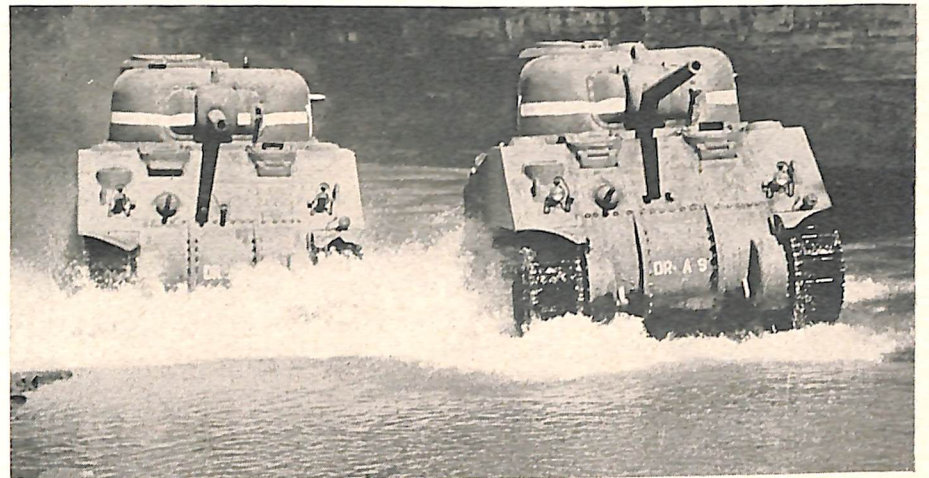
In Libya and Egypt both British and American crews have demonstrated that the M-3 tanks were more than a watch for German and Italian tanks. It was recently said by a British officer, Capt. John Lovell Marsh, that he, as well as thousands of other English soldiers, found new confidence with the arrival of American-made tanks. Having commanded a tank squadron, during his eighteen months with the 8th Army, Capt. Marsh, an authority on tank warfare, stated that he was most favorably impressed by our light tank. "If we had had that type of equipment at the start of the war, the story would be different. I found the American light tank to be reliable and mechanically perfect."

Richard D. McMillan, in a news release sent from British battle headquarters in the Egyptian Desert, wrote in November: "Big forces of American-made General Sherman (M-4) tanks, the latest, hardest-hitting, heaviest armored models, helped beat Marshal Rommel to his knees. The Sherman has proved itself the best tank in the desert, vastly superior to the vaunted German Mark IV's. British crews who have fought the Germans in the last two weeks believe they are the best tanks ever made."

Long before the M-3 had been in battle, Army Engineers, in conference with the Chief of Armored Force, and with the Armored
(Continued on page 172)



When messages must get through in a hurry, nothing can compare with the motorcycle. The Armored Force uses them in quantity to direct convoys, get messages through, and for general reconnaissance work over terrain where larger vehicles are too conspicuous. They played a big part in the fall of France and Belgium, effectively used by the Germans. Note the Tommy Gun in the holster.



Whether they fight on land or in water, M-4 Tanks are the backbone of America's mechanized might, and are proving their mettle in the African desert war which is turning out to be the downfall of General Erwin Rommel and his Afrika Korps. These tanks, on test run here at Ft. Knox, Ky., headquarters of the Armored Force, are the most powerful land battlewagons in the world.

The Federal Bureau of Investigation Is at War

by
John Edgar Hoover

Director, Federal Bureau of Investigation, United States Department of Justice

LIVES of nations are determined not by the count of years, but by the lifetime of the score of the human spirit. The life of a man is three-score-and-ten, a little more, a little less. The life of a nation is the fullness of the measure of its will to live . . ." So spoke our Commander in Chief on January 20, 1941.

The will of the United States to live must have been his thought on September 6, 1939, when he directed the Federal Bureau of Investigation to direct, control, correlate and channelize all of the investigative work relating to espionage, sabotage and violations of law affecting our national security. So must he have thought when in this Directive he requested all law enforcement agencies to report to the FBI all evidence of any activity dangerous to the best interests of this country.

Our President profited greatly from his service in World War I. Our government and our peoples experienced much from that war. We saw at that time more than twenty different agencies handling investigations of internal security matters. We observed at that time too many innocent persons prosecuted by well-meaning but inexperienced individuals. The activities of the Vigilantes mocked the civil liberties we fought to preserve. We knew at that time of too many instances where our national security was violated without the responsible persons being brought before our bars of justice.

Profiting from these experiences, seeking to avoid their repetition, realizing the necessity for a centralized Federal Agency to handle matters involving our national security the FBI was ordered to shoulder this responsibility.

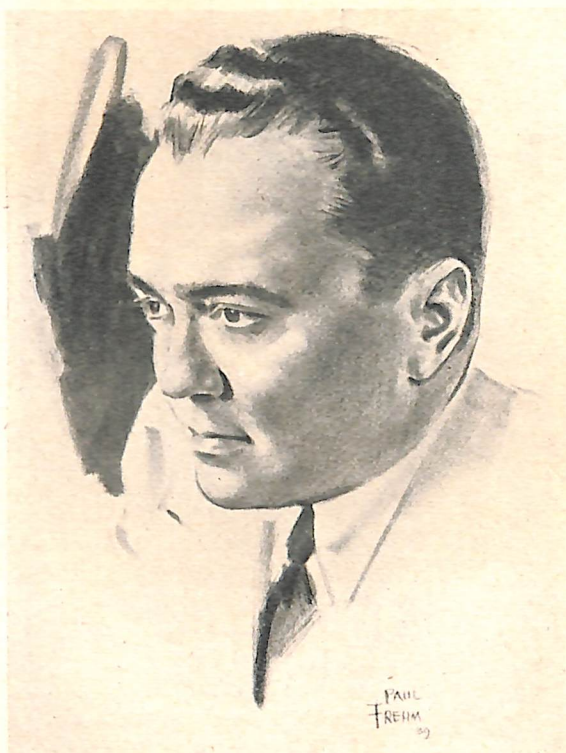
It is interesting to point out that the organization and administrative functioning of the FBI did not undergo any fundamental changes. The personnel was enlarged to meet the burdens of the increased responsibility. The curriculum of the Agents' training became more intensive and expansive. Scientific and practical studies of the investigative approach to violations of our national defense program became the major concern.

In 1924 the Identification Division of the Federal Bureau of Investigation was established with slightly more than 800,000 fingerprint cards and a few contributors. Law enforcement needed a central repository for criminal data on individuals arrested for violations of the law. In 1939 this Division was serving nationally and internationally 10,518 police agencies and had on file 8,632,025 criminal fingerprints. It was ready for the emergency yet to come.

In 1932 the Technical Laboratory took its first objective step toward the light of day. With one scientist in a small room this sec-

tion developed until 1939 it occupied over 10,500 square feet of space and was manned by 29 technicians, serving an inestimable value in the solution of crime and defeat of the paid criminal alibi. Additional scientists were being trained to fit into the foreshadowed wartime expansion program.

In 1935 the National Police Academy was founded by the FBI. Selected officers from the various law enforcement agencies were



schooled in their field of endeavor. They returned to their respective departments and their conducted schools passing along the education of modern police work. In 1939, 370 men had graduated from this school and 78,796 police officials had benefited by their attendance.

With these available facilities and many others—backed by experience and training—it was but another natural step for the FBI in its service to our country to respond to the order of our Commander in Chief.

Immediately the FBI Law Enforcement Officers Mobilization Plan for National Defense became effective. More than 150,000 police officers of the nation were mobilized into action. Quarterly Conferences for law enforcement officials were instituted at once and are still being held throughout the country. Law enforcement representatives attending these meetings learn firsthand the investigative technique in national security cases. Defense matters of mutual interest are discussed and serve to coordinate the efforts of the entire law enforcement field on a national scale. Today, law enforcement agencies are

assisting the FBI materially in the handling of national defense cases.

An immediate conference took place with the Office of Naval Intelligence and the Military Intelligence Division of the General Staff. Today at Washington and in the field where either Intelligence Service has an office, regular weekly conferences are held, participated in by officials of all three organizations. In these conferences information is exchanged and furnished—all toward a closer collaboration in the maintaining of a United Front against those who seek to destroy us.

To avoid a duplicity of effort and to afford a more direct attack on the respective problems a jurisdictional agreement has been reached wherein the investigative responsibilities of the FBI, the Office of Naval Intelligence and the Military Intelligence Division are clearly defined.

At the request of the Army and Navy, Agents went out into industry. They conducted surveys of those plants determined by the Army and Navy as vital to the national defense. Recommendations and suggestions were made toward the development of protective facilities against the saboteur and spy. The Army and Navy influenced industry to adopt these suggestions. Up until January 5, 1942, we had conducted over 2,300 surveys of this type. By that time the Army and Navy were in a position to assume the responsibility of plant security and are now affirmatively active towards assuring unhampered production so that our fighting forces will not suffer for lack of equipment.

Today every defense plant worker is fingerprinted. Entrance into our plants is no longer an "open door affair." The saboteur or spy would find it difficult to work his diabolical intentions in our industry.

It is interesting to note that most of the sabotage during World War I was committed before the United States went into war and during that period when the sympathy of this country was apparent to the world powers involved. This was illustrated by the Black Tom and the Hog Island explosions.

I am happy to say there has been no evidence of foreign-inspired sabotage in this country to date. I attribute this in no little part to the plant surveys before we went into war, to the thousands of confidential publications concerning precautionary methods made available to industry, to industry itself in complying with the recommendations made to it, and to the millions of workers who have remained ever alert and vigilant.

In 1940, two representatives of the FBI went to England. They made studies and observations of the methods used by law enforcement to protect the home front under

(Continued on page 166)

The Rubber Situation in the United States

by
William M. Jeffers
National Rubber Director

TWO major needs of equal importance govern the rubber situation in the United States.

The first of these is that rubber must be provided for our Armed Forces, the greatest mechanized force in the history of the world. Everybody understands this need and agrees with it.

The second is that rubber must be provided to transport war workers to and from their duties; to transport materials from their sources to war plants; to transport food and clothing and other necessities to our manufacturing centers. This rubber is just as important as is rubber for our war machine. It is this point that needs to be fully understood by every American citizen, in the Services and out of them.

Basically our rubber situation is simple enough. We have been cut off from Malaya, the world's principal source of crude rubber. No other rubber-producing area, or any combination of them, can even approach supplying the 600,000 long tons a year we normally consume. We cannot, therefore, expect to get any appreciable quantities of crude rubber for a number of years.

We are engaged in building a synthetic rubber industry to supply that need, compressing into a couple of years a task that normally would take a decade or more. At the end of that couple of years—the middle of 1944 or thereabouts—we should have enough synthetic rubber to fulfill all our basic needs, civilian as well as military. The intervening two years, between now and mid-1944, are the crucial ones. We must bridge that gap and we can bridge it only by the most careful conservation of rubber by every individual.

We can and will provide the rubber for our military machine and for the needs of our allies. If the Services exercise reasonable caution in their use of rubber we should have no difficulty in meeting military requirements.

It is the equally important civilian field that we must watch with the greatest of care. Millions of war workers must be transported to their jobs and back home again daily. Some of them must travel long distances, due to housing shortages in crowded factory areas. The public carriers, the buses, street cars, subways and commuter trains, cannot carry more than a fraction of them. The urban

transportation systems of the United States can carry some 7,450,000 passengers at a given time. Millions more than this must move—and the only way they can move is on rubber.

The easiest path to military defeat is collapse of the domestic economy. We must avoid that at all costs, at whatever incon-

mobiles of the United States may well represent the margins of victory in this war.

I have a great deal of confidence in the American people. I am confident they will conserve their tires carefully and conscientiously because those tires are vital to the war effort. If the American people observe the

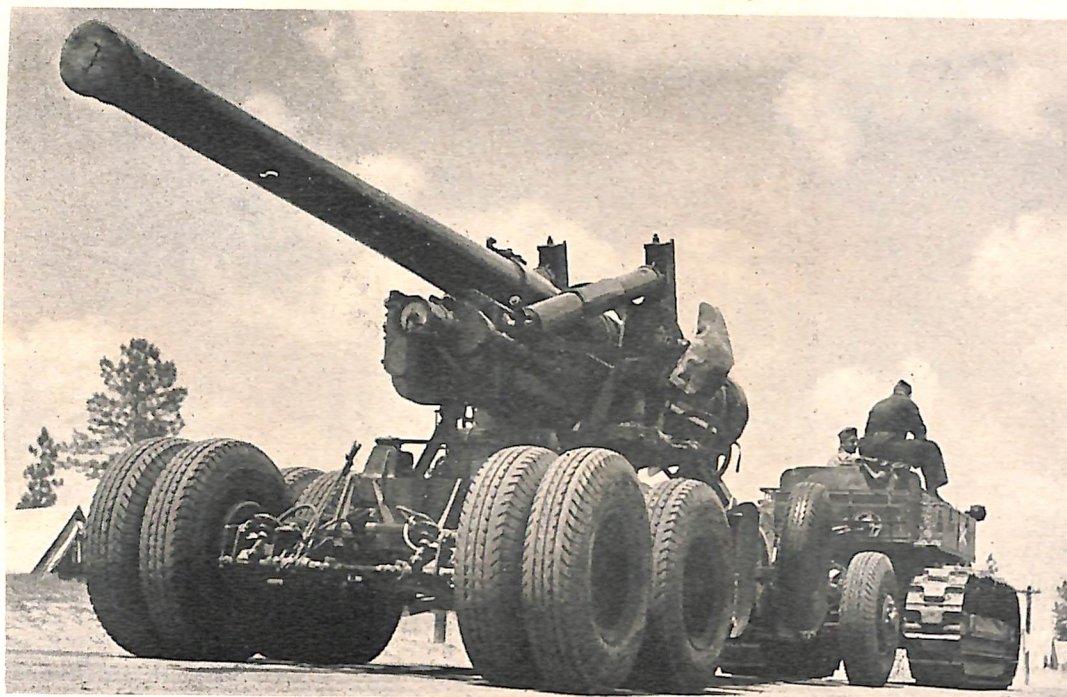
present rules in the spirit I believe they will observe them, it appears now no more stringent restrictions will be necessary. We are not going to be able to bridge the gap between crude rubber and synthetic in the style of motoring to which we are addicted, but we are going to keep this country on wheels.

While it is undoubtedly true we did not jump into the production of synthetic rubber quickly enough on a large scale, nevertheless progress that is being made is a tribute to American chemical and mechanical ability. We are making great strides in the pro-

duction and use of synthetic rubber. Six months ago the tire fabricators of this country were estimating they could produce tires from synthetics at about half the speed at which they processed crude. Three months ago they had increased the rate to 70 per cent. Now they tell me they can operate at about 90 per cent and in a very few months they will be turning out tires just as rapidly from synthetic rubber as they ever did from crude.

The use of synthetic rubber for tires presents some unknown difficulties, of course. By early next year, however, we will be producing tires from synthetic rubber in sufficient volume to study the operation and take the "bugs out of it." The fabricators of rubber already have made important strides in this direction and constant research is being made to improve their methods. It must be realized, however, that synthetic rubber is an entirely different product from crude rubber. It contains different materials and has different qualities. All these qualities must be studied.

There are many long-term projects for the solution to our rubber problem; crude rubber from Latin America, rubber from the guayule shrub and the cryptostegia vine, and other potential sources. All of them will help. I make only one prediction—that never again will the United States be utterly dependent upon a far-distant source for a material so vital to its life as rubber.



Army Signal Corps Photo

One of the reasons rubber must be rationed to further the war effort. It takes plenty of rubber to keep this 155-mm. gun rolling toward the enemy. Lower: William M. Jeffers, National Rubber Director.



venience to the individual. To avoid that collapse, rationing of gasoline, the 35-mile speed limit, compulsory tire inspection, and other regulations have been instituted. If these rules, designed to limit our motor cars to essential driving, are carefully observed we will bridge our two-year gap. The million tons of rubber in the tires now in service on the auto-

Keeping the Navy Physically Fit to Fight

by

Rear Admiral Ross T. McIntire

Medical Corps, Surgeon General, U. S. Navy

THE average person and even the average military man sometimes does not realize sufficiently the importance of military medicine and the part it plays in the successful employment of a military organization in war. Victory is not only on the side of the biggest battalions, as Napoleon put it, but it is also on the side of the healthiest battalions. Indeed, the two expressions are nearly the same, for the battalion with half its men on the sick list is obviously likely to be the smallest battalion. The effect of disease upon military operations is not sufficiently appreciated and the historian has not given it, in general, sufficient notice. Yet, we know now that the probable failure of three of the great Crusades was due to epidemics of dysentery, smallpox and plague. The entire French campaign in San Domingo in 1802 was wrecked by yellow fever and malaria. Napoleon's Russian campaign failed not only because of the Russian winter and Russian military action, but because of the tremendous number of men lost by typhus and pneumonia. Many, many more instances could be cited; and it is not remarkable that one of the great modern students of epidemiology has made the statement, which it would be hard to successfully dispute, "that typhus, with its brothers and sisters, plague, cholera, typhoid and dysentery, has decided more campaigns than * * * all the generals in history." Scurvy, which used to be one of the great diseases of the sea, had important bearings upon naval operations and it is even said that the discovery of its cause and prevention in the 18th century resulted in the downfall of Napoleon, as if it had not been possible to control scurvy in the British fleet, the blockade of the continent during the Napoleonic Wars could not have been maintained.

It is evident then that the field of preventive medicine is one of the most important with which the military medical has to deal. It has been said that the specialty of the general practitioner is obstetrics. It is equally true that the specialty of the naval surgeon is preventive medicine. In our Navy, the Medical Department is concerned with the preservation of the health of the officers and men and this is carried out by means of all the scientific knowledge which modern medicine has to give. Selection of physically sound men; safeguarding of the purity of food, water and air; vaccinations against important diseases such as smallpox, typhoid, tetanus, and yellow fever; are all a part of this work.

Every large group of individuals, however, has what one would call, a normal sick rate and a normal injury rate; and to care for the sick and injured and also to care for the casualties which may occur in battle, the



Medical Department of the Navy maintains a great organization of dispensaries and hospitals. When these dispensaries are on ship, we speak of them as "sick bays." In addition to the hospitals which we have on shore, the Navy maintains hospital ships, which are floating hospitals capable of accompanying and serving the fleet. Besides this we have

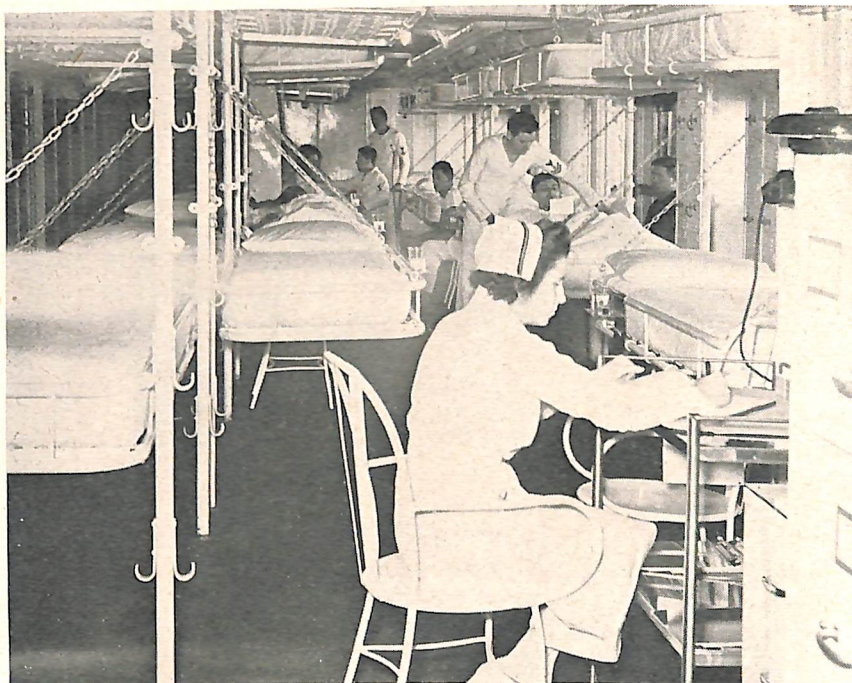
mobile hospitals, which can be packed up and moved from place to place. Our medical officers, our dental officers, our pharmacists, our female nurses, and our hospital corpsmen are all engaged in these great tasks. Foresight, planning, hard, conscientious work—all of these are needed, and I am proud to say all are forthcoming from the medical personnel.

There is another side which I would like to mention briefly and that is the supply of medical materials and appliances, instruments, dressings and drugs which are needed. The Navy maintains medical supply depots for the purchase and distribution of these medical and surgical supplies.

One other field of the Medical Department of the Navy activities I must mention is the field of research. Medical research is going on all over the world, but there are many problems of naval medicine that require special knowledge and special means of study.

Finally, I would like to mention some of the great achievements of military medicine. The conquest of scurvy—one of the milestones of medical progress, was the work of naval surgeons. Scientific sanitation and hygiene, immunotherapy and preventive inoculation were largely developed by the medical men of armed forces. Our modern system of trained nursing had its origin in war. Hippocrates noted the value of military surgery in advancing knowledge of the science of general surgery and many of the greatest surgeons and medical men, Paré, Harvey, and John Hunter, have been military surgeons. I mention these developments as showing what has been accomplished in the past and to indicate that in the future, military medicine may add many new things to medical progress for the benefit of mankind.

All these things then add up to the value of what military medicine has done during the past years and what these things will do to hurry the winning of this war. One thought which should always be kept in mind is that although we now have materiel with which to fight this war that nearly surpasses mechanical perfection, to operate this a human being must be physically and mentally fit at all times. The Medical Department of the Navy is charged with the duty to see that the personnel is physically fit. With the program that is now in force there is no doubt in the minds of the members of the Medical Department of the Navy but that they will discharge that duty, and in so doing the defeat of our enemies is sure.



Scene aboard the USS Solace—a sea going hospital for sea going Americans.

U. S. Navy Photo

The Exacting Test of War

by

Major General James C. Magee

The Surgeon General, U. S. A.

THE planning and preparation which engaged the attention of the Medical Department for many years have been put to the exacting test of war. Military theory has been converted to practice, plans into operation and surmise into experience. The treacherous assault on Pearl Harbor, which reserved to Japan a special page in the annals of infamy, immediately reopened the book of military surgery and, happily, wrote one of its brightest chapters. Hundreds of cases of desperately wounded and burned individuals resulted within a short time, straining all medical facilities to the utmost in order to provide life saving care. Wounds were not only very extensive and mutilating but heavily contaminated by the well fertilized soil of the island. Experience gained from previous wars pointed to a stormy course on account of massive infection, and a dark outcome for many—if not the majority. A staggering death rate (80%) had always resulted from perforating wounds of the abdomen. Hope of better results were entertained from the sulfonamide compounds which had come into use in recent years, and the employment of human plasma for the treatment of hemorrhage and the much feared shock which invariably accompanies severe injuries.

The brilliant results obtained exceeded even the most sanguine of these hopes and gave assurance that a new era in battlefield surgery had been realized. Plans had already provided for the issue of a special box of sulfanilamide tablets to soldiers prior to combat, to be taken by mouth if wounded. The experience at Pearl Harbor led to the inclusion in each first aid packet of a package of crystalline sulfanilamide which is to be dusted on the wound itself.

One feature of the medical management of the casualties which has not received the attention it merits is the system of sorting and evacuation which functioned efficiently from the earliest phases of the attack. Without the successful operation of such an organization neither sulfanilamide, plasma nor surgical skill could have availed to save the lives of the wounded. The principles employed were those taught at the Medical Field Service School. The results demonstrated the inestimable value of the field training given to medical officers at that unique school.

It will be remembered that in an article written last year the Medical Department was discussed under the following headings.

To highlight the changes that have occurred data will be considered under the same headings.

SELECTION. The original standards for selection were purposely set high to attain the specific objective of the moment. Grimmer

will be provided appropriate treatment at public expense so that they may be qualified for duty with the armed forces. In the commissioned grades individuals possessed of special capabilities, although they do not meet certain physical standards, may be accepted for "limited duty only."

For the first time in this period of emergency cases of acute uncomplicated gonorrhea may be accepted for military service. Hospitalization is provided, thorough physical examination is made and treatment is given to make the disease non-infectious. These men accordingly become available for army service.

Due to complications which arose as a result of the double examination, the preliminary one by local boards has been abolished. All examinations are now carried out by Army Induction Boards. A great deal of attention is devoted to the mental examination.

PRESERVATION. Regarding immunization, two very significant advances have been made. First, vaccination against tetanus has been established universally,

and secondly, vaccination against yellow fever has been extended to all military personnel scheduled for duty in zones where the disease is endemic. No reactions of an unusual nature appeared among the many thousands of the group first vaccinated. Mass immunization resulted in the occurrence of a complication which could not be anticipated, namely jaundice. In any pioneer endeavor untoward effects often happen. Intense study by leading medical scientists was devoted to this unusual condition. Despite the assurances of the Secretary of War that these were not cases of yellow fever the erroneous impression, to the contrary, still tends to prevail. Let me, therefore, re-emphasize most emphatically that the condition did not result from the virus of yellow fever, a fact repeatedly confirmed by careful research conducted in many laboratories. The policy of immunization for bubonic plague, cholera and typhus fever is the same.

A new activity of immense importance is the compilation in the Office of The Surgeon General of data, most easily defined to military men, by the designation "Medical G-2" file. This is composed of a summary, from all possible sources, of the health conditions in potential theaters of operation. Extracts of this are made available to the commanders of task forces summarizing the health con-

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Army Signal Corps Photo.

A most severe test of the Army Medical Department came during the Battle on Bataan Peninsula, when Medical officers had to improvise hospitals in the jungle to care for the thousands of American and Filipino casualties. Below: Major General Magee, Surgeon General of the Army.



realities have required modifications in the physical standards. A new group now classified "individuals with certain correctable defects" has been authorized. These inductees

Naval Communications in Wartime

by

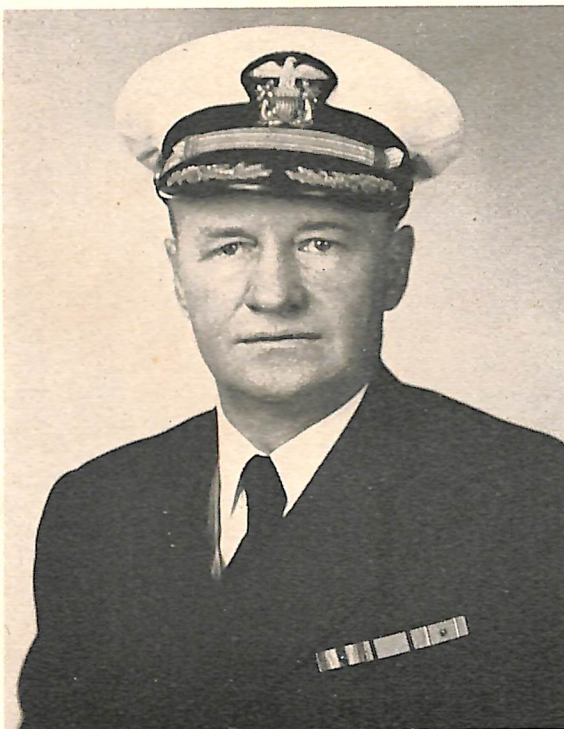
Captain C. F. Holden, U. S. N.

Director of Naval Communications

THE trend of world events in recent years made it more and more apparent to thoughtful observers that war would inevitably reach the United States. No one could say where or when the first blow would fall, but for months before December, 1941, the Navy was on the alert for danger. Despite many precautions the unexpected disaster of Pearl Harbor took place, but it is more accurate to say of this tragedy that the nation was caught off balance, than that it was totally unprepared. Attacks were expected, but the western Pacific seemed to be a more probable Japanese objective, and, thus, all attention was not centered on Honolulu. At any rate the Navy's rapid recovery from the treacherous assault has been most encouraging. Though there is much to be proud of in the exploits of the past few months, the real job has just begun.

One of the many factors in this recovery has been the successful functioning of the Naval Communication Service. War requirements have added extra burdens to its usual task of maintaining contact with the fighting fleets and overseas possessions of the United States. Convoys of merchant ships with their vitally important cargoes must be shepherded through dangerous waters, and all this has meant tremendous growth in communication problems. The most important duty, of course, is to keep the Task Forces in constant touch with each other and with the Commander in Chief. No one who can visualize the immense distances of this global war will minimize the difficulties of such com-

munications. But fortunately for the success of the nation the problems have been solved. Had the Naval Communication system broken down during the Battles of Coral Sea and Midway, the story of triumph would have been much different.



The achievements of Naval Communications were not made possible by sudden, haphazard efforts. Long before 1941 a sound standard system of communication had been organized in peacetime to meet the demands of war. Such foresight paid excellent dividends when war was at last declared. From the earliest beginnings of radio down to the present day, the Navy had been to the fore in research, and in the development of new and better equipment. No item or theory in the field of radio, however insignificant, had been left untested. It was a Chief Radioman in the Navy who first pointed out that sunspots definitely affected radio communications; the first trans-oceanic radiotelephone system was set up between the Naval Station at Arlington and Paris; motion picture newsreels were an outgrowth of Navy research; and also the radio spectrum channelling system now in international use was the direct result of similar efforts. It is evident, then, that with

such a background in the development of new devices, Naval Communications would have the most modern equipment available.

As for the planning necessary for the proper use of such equipment, it may be said that as early as 1930 the nation's basic preparedness program was in operation. Of course, when war broke out in Europe in 1939, no effort during the next two years was spared to have the Naval Communication Service ready for any eventuality. Those two years were of inestimable value in that, by the time America was attacked, the groundwork had been laid for quicker, and more efficient conversion of war operation. Not the least important aspect of such planning was the coordination of Navy radio channels with those of the commercial companies. In emergencies there must be no confusion, and tests have demonstrated the value of such coordination.

Though not fully completed by December 7, 1941, the groundwork had been well conceived, and so, overnight, Naval Communications passed smoothly from uneasy peace to global war. Fortunately, the Navy was able to supply the rapid communications that modern warfare demands. In olden times ships operated separately or in small tight groups since communications at sea were extremely difficult, and delivery of messages was often a matter of weeks. Now whole fleets of ships, submarines, and planes operating at great distances from each other move as one synchronized body with the help of radio. The

(Continued on page 166)



U. S. Navy Photos

Upstairs and down, Naval Communications are vital to the efficient functioning of war at sea. Left, a signalman on a U. S. Navy destroyer on Atlantic convoy duty blinks a message to a tanker, while another reads the light flashes from another convoyed vessel. Right, surrounded by his compact transmitter and receiving set a radio operator aboard a Navy bomber keeps his big ship in touch with headquarters and with other ships of the air.

The Army Signal Corps

by

Major General Dawson Olmstead

Chief Signal Officer of the United States Army

IN a war in which men and machines move at breath-taking pace on the ground and in the air, it is essential that vital information be dispatched at an even faster pace. And it is also essential that this information be withheld from the enemy. These twin requirements of secrecy and speed are the guiding principles of the Signal Corps, which provides the equipment and personnel for the Army's lifeline of communications.

In fulfilling these obligations, the Signal Corps is now active on an unprecedented scale both at home and overseas. It keeps the Army's technical means of liaison functioning between the War Department General Staff in Washington and the most remote point in any part of the world where an American soldier is stationed. And it keeps the communications going among the units of our forces on the fighting fronts. At home, the Signal Corps is training men by the thousands in the advanced technique of radio, wireless and wire communication. And it has the grave responsibility of procuring, for the ground and air forces of the army, the best and most rugged in communications equipment—much of it new in design—to the value of billions of dollars.

This complexity of communications is relatively new—but its purpose is a simple and time-honored one. Throughout the history of nations, honor has been paid to those who delivered needed information at the right place and in the nick of time, from the swift-footed messengers of ancient Greece to the man who carried the celebrated message to Garcia.

Today, while swiftness of foot still counts in certain emergencies, we are able to send most messages at the speed of electrons and radio waves. The major reliance is on electrical communication of the most modern type—a good deal of it more advanced than anything available to the general public. While statistics may no longer be divulged now that we are at war, it can be said that the Signal Corps, continuing its phenomenal expansion, already comprises one of the world's largest aggregations of telegraph, telephone and radio technicians, trained or in training.

In obtaining this personnel, we have been fortunate in the fact that this in peacetime was a radio-minded nation. Former amateur operators and set-builders, former radio service men and others who made a hobby or profession of the radio field have been brought into the Signal Corps through selective service, by enlisting, by qualifying for officer's commissions and by civilian employment. Key men in the private radio and electrical communications industries are giving their services and counsel.

In its current phase of rapid expansion, the Signal Corps is aided also by its own tradi-

tion of scientific pioneering. The Signal Corps was the first Federal agency to collect weather information—a service which later developed into the Weather Bureau—and it still advances the weather-forecasting art by its development of radio-transmitting balloons for ascertaining conditions in the upper atmosphere. Again, the Signal Corps was the first United States military unit to make use of airplanes—for they could carry dispatches before they were powerful enough to carry guns or bombs. Out of the Signal Corps' original aviation division developed a child



that has greatly outgrown its parent. The Signal Corps still serves that child by providing radio compasses to guide airplanes, radio command and liaison sets to coordinate their operations, and interphone equipment for communication among the crew members of bombing planes.

On the other side of the aviation picture, the Signal Corps operates an aircraft warning service to detect and report the approach of hostile planes. This service makes use of "electrical sentries," a secret device to spot attacking planes many miles from our coasts. Only recently, with the need for recruiting electrical engineers and physicists to operate these detectors, was their very existence made public, but the method was worked out behind closed doors at the Signal Corps Laboratory in Fort Monmouth over a period of seven years.

An important responsibility of the Army Signal Corps is the design and procurement of radio apparatus for all types of troops. Here are shown, upper, a radio set in an airplane and, lower, a set transported by horse for use with the Cavalry.

Army Signal Corps Photo

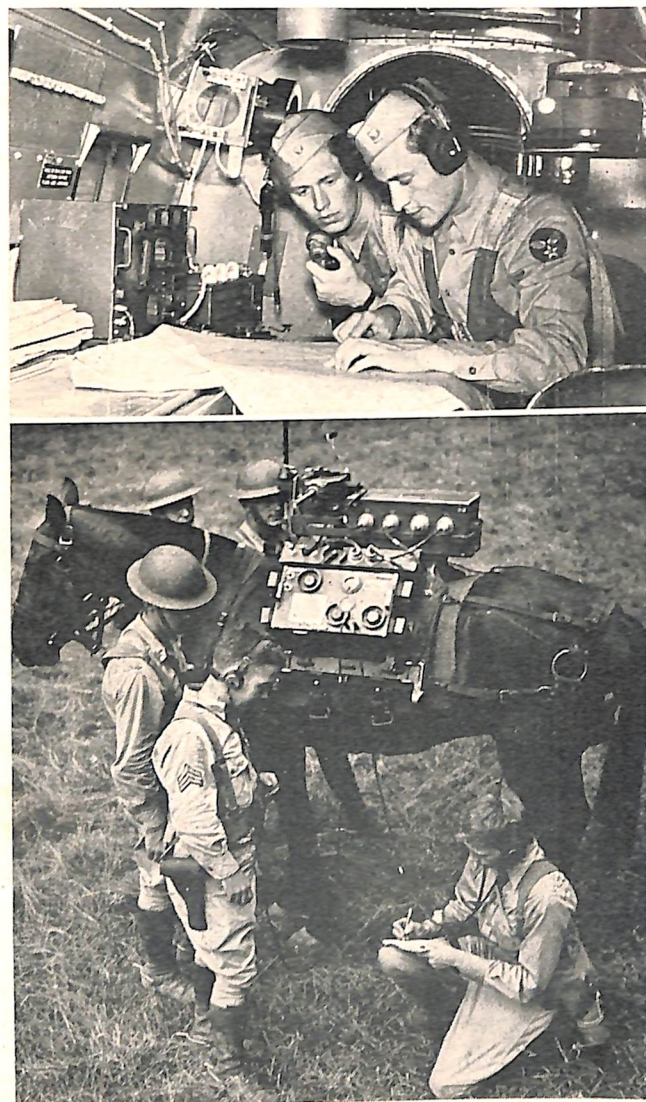
For the men at the front, the Signal Corps has put into service special "walkie-talkie" radio sending and receiving sets, easily carried by one man. Radio sets with pushbutton control have been installed in tanks, so arranged that the operator talks through a throat microphone and listens through earphones inside his padded helmet. Other equipment has been specially designed for use in scout cars and at field headquarters.

In addition to its mobile units, the Signal Corps operates extensive fixed telegraph, telephone and teletype installations. Here we require, and are training, large numbers of telegraph, teletype and switchboard operators and men to install and maintain the various types of apparatus.

Signal Corps units are present in all Army organizations from the division up through the Field Army. In smaller units, equipment procured by the Signal Corps is operated by men of the various arms.

In addition to its expanded program of highly technical training for its own personnel—a program that gives Fort Monmouth the aspects of both an army camp and a technical college—the Signal Corps aids the training program of the entire Army. It does

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Radio -- Vital to Modern Warfare

by
Colonel David Sarnoff

U. S. Army Signal Corps

WHEN war broke out in 1939, a large part of the public looked forward to a repetition of the trench-warfare deadlock of 1914-18. This time, the trenches were to be in modern dress, in the form of Maginot and Siegfried lines. The comparative quiet on the western front during the early months of the war seemed to confirm this view.

What the public failed to realize was that the scientific and technical advances which had taken place in twenty years all tended in one direction—mobility of action. The airplane and the tank were conspicuous examples of this change in fighting technique. Less conspicuous, but perhaps more important than any other single innovation in military methods, was the employment of radio in every phase of action. New strategy called for speed; speed called for rapid intelligence, communication and control; radio supplied the nerve system indispensable to coordination between the brain and muscles of the fighting force.

Radio coordination empowers the forces on land, sea and in the air to synchronize their operations and to function at high tempo without chaos. Successful handling of radio intelligence, whether by garrisons or commandos, by submarines or the fleet, by tanks or task forces, by reconnaissance planes or bombers, is a vital factor in the formula of victory.

The enemy also is implemented with radio. Efficiency of the equipment and generalship in its use are weights that tip the scales of modern war.

In land combat, accelerated by mechanized units, dive bombers and swift fighter planes, orders are flashed and executed before the enemy can decode and counteract them. Precision of mass air attacks by hundreds of planes is made possible by radio.

On the seas, transmission in wartime is restricted to urgent necessity. Silence guards the ships. They carry "silent" radios, but they are aurally sharp and alert. Great convoys move in silence, lest a radio signal reveal their presence to submarines or to bombers beyond the horizon.

Blitz and panzer tactics cannot outwit radio communication, for radio itself travels at lightning speed. It annihilates time and distance, whether at sea or on the desert. Radio can talk by voice, or flash its traditional code. Tanks are radio-equipped with rugged apparatus; air armadas have radio ears and voices adapted to the terrific pressure of war. Scouts and infantrymen carry portable "walkie-talkie" outfits.

Nothing can excel radio's ability as a scout; no mountain can block it, no curvature of the ocean can obscure or stop it. No gun or bomb can sever a wavelength. No sand-storm can

rob radio of its intelligence or stop it as a dispatch rider. Lost fleets, lost battalions belong to the past—to the Pre-Radio Age.

Generals and military strategists, Presidents and Prime Ministers talk across the sea as readily as over a local telephone; they fly the Atlantic guided by radio in less time than the fastest trains run between New York and Chicago.

The enemy cannot move supply columns or maneuver his forces with assurance that radio and plane are not watchfully following. He cannot put his radio transmitter on the



air to communicate, or use his radio to guide an over-the-horizon shot, or to direct an anti-aircraft barrage, without being spotted. Radio "telegraphs" the enemy's blow. The military ear listens in on all the earth as if it were a sea shell.

Never in history has science been so widely diverted from its peaceful pursuits and services to wage war. American ingenuity, research and engineering have made radio a powerful arm of the United States, which reaches to all the United Nations.

The airplane, radio, submarine, tanks, motor, transport, machine gun, anti-aircraft battery, radiolocator and an endless line of other inventions have been perfected by science, largely in America—the same science which brought forth broadcasting, television, the motion picture, the automobile and countless other things which make peace-time life more pleasant. Yet Mars, with a mighty sweep of the armored arm, pushes all up to the firing

line. American laboratories, therefore, are giving their all-out efforts to equip American soldiers, sailors, marines and the forces of the United Nations with the finest radio equipment and weapons in the world, so that whether dive-bombing or torpedoing, parachuting or shelling, science may protect them and give them the strongest arms of combat.

In the twenty-five years that have intervened between the wars, an unsurpassed radio system has been developed in the United States. Mindful of the tremendous importance and unlimited possibilities of the radio electron tube, research has concentrated upon its development. Today there are hundreds of different tubes serving many purposes. Radio research is extensive. It is closely related to the sciences of electronics, chemistry and physics, with metallurgy and optics. The research laboratory is a mighty fortification. In it the shock troops of modern warfare—the scientists—fight. Their weapons are infinitesimal electrons, high-frequency currents, sensitive ears that hear afar, and electric eyes that see at a distance.

When America entered this conflict, it had a vast radio industry available for rapid conversion to war production. Against the background of long experience in manufacturing millions of radio sets for civilian use and apparatus for all branches of radio communication, the production lines were geared quickly to the total war effort. In 1917, the demand for radio was mainly limited to marine and land stations, and to field equipment. Since that time, the airplane has greatly intensified the uses of radio in warfare, and has put new demands upon engineering and manufacturing. Both are answering the call magnificently. American aircraft and ship and shore stations have radio equipment unequalled in construction and efficiency. Constant pioneering and development of the electron tube have answered the challenges of communication in blitz warfare.

Since World War I, America has developed the finest system of broadcasting in the world. More than 900 stations are on the air, and more than 55,000,000 radio sets are in the homes of listeners. Nation-wide networks serve the country and its people. The emergencies of war reveal the tremendous importance of the networks, for in times of national emergency they quickly can be linked to reach every nook and corner of the nation. Supplementing them, hundreds of independently operated stations serve local communities.

In no other war has the American public in city and on farm been so thoroughly informed. Never before have the people had such up-to-the-minute contact with the vari-

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Labor, Management, and the Navy

by

Rear Admiral C. H. Woodward, U. S. N. (Ret.)

Chief of the Incentive Division, Navy Department

RECENTLY the civilian workers at the Pearl Harbor Navy Yard presented President Roosevelt with a unique token—a check for \$70,000 representing pay earned by working Labor Day and contributed by them to help finance the war. Appropriately, the check, drawn on the Bank of Hawaii, was written on a fragment of a Jap plane shot down in the December 7 raid.

The fact is that many of these civilian workers had themselves been under fire in that treacherous attack and had courageously joined the Navy and Marine Corps in manning guns that defended the harbor. Undismayed and undaunted, they subsequently resumed their duties with even greater zeal and devotion. And despite almost insurmountable difficulties, their production achievements during the next nine months were so outstanding that they won for themselves the high distinction of the Army-Navy "E"—symbol of Excellence in production.

That indomitable spirit, manifested in a thousand ways by both labor and management in their relations with the Navy since the beginning of the world crisis, is immeasurably speeding the gigantic task we have before us. It is not only bringing ever closer to realization America's multi-ocean Navy of the future, but is laying, securely and inexorably, the foundations for the smashing victory over the forces of aggression which we are consecrated to win.

Today the Navy is the largest single employer in the country, if not in the world. Grim necessity has forced us to embark on a Naval construction program of unprecedented magnitude, while at the same time we are prosecuting the greatest war in history, and the needs in terms of manpower, machines and materials for these interlocking objectives are simply staggering.

At the present time we are building over 3,200 combat, auxiliary, patrol and mine vessels for our own use, in addition to hundreds of warships and smaller craft for our Allies. Expansion of the Navy's air arm is rapidly strengthening our striking power by hundreds of planes monthly. Also being tremendously increased are the Navy's land bases and shore establishments, with their countless dry-docks, wharves, barracks, machine shops, and other installations. And finally, there is the vast job of producing Naval ordnance, involving some 10,000 different plants and comprising by itself an industrial program larger than that of the entire American automobile

industry of pre-war days.

In meeting this mighty production problem, rendered doubly grave because in our

brain, every ounce of energy, every bit of skill and ingenuity that free American labor and free American enterprise could muster. It has not sought in vain. The response from both management and labor, organized and unorganized, has been little short of magnificent.

But even more inspiring has been the unity, the feeling of comradeship that has animated these soldiers of production and the personnel of the Navy in their common task of transforming our enormous industrial organization and potentials into an arsenal for the tools of victory. Never has practical democracy been more dynamic or efficient. If any more proof were required that for us, the American way of life is the only way of life, this most perilous period of our national existence has supplied it beyond quibble or dispute.

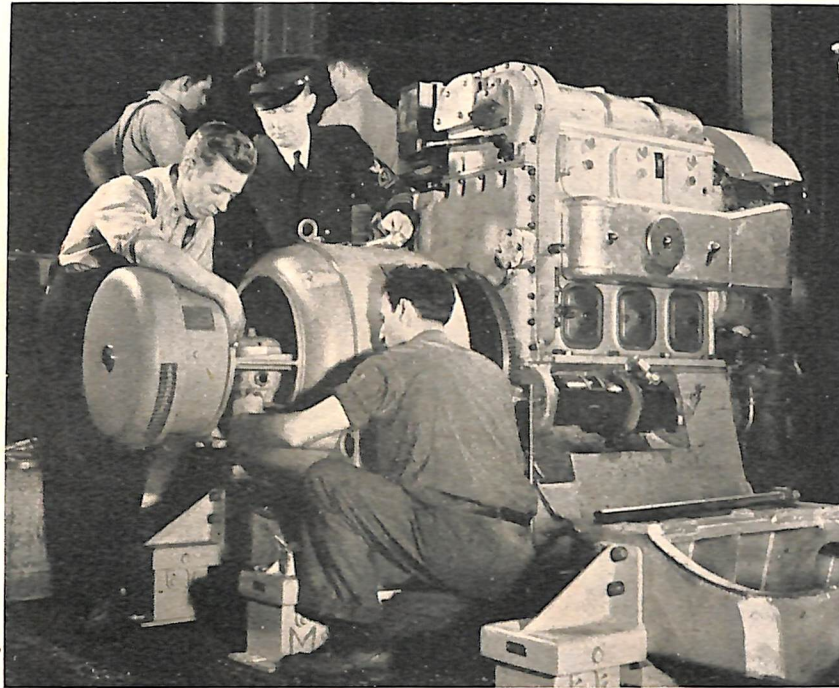
The Navy Department itself accurately characterized this prevailing spirit of understanding and cooperation when it declared publicly not long ago: "The aims, ambitions, plans and hopes of the Navy are identical with those of the vast majority of men and women who work for the Navy, and its employees are engaged and joined in a common cause and a common objective."

This cooperation and teamwork is a prerequisite of total war, which is in essence war on two fronts—the fighting line and the production line. The strategy of this type of warfare is simple: Produce—and attack! The side that produces materiel faster, and with this advantage of firepower attacks sooner, wins the day.

In the Battle of Production, the primary task of management was of course conversion from peacetime to wartime output. The assembly lines of America, producing luxury goods like motor cars, radios, vacuum cleaners and refrigerators, had to be halted and scrapped. Retooled and converted, new assembly lines had to be set rolling, turning out ships and the armor to protect them, shells and the guns to hurl them, bombs and the planes to drop them.

This formidable task, considering the pressure of time, management met with admirable vigor and dispatch. Almost overnight makers of automobiles were making plane and supermarine engines; sewing machine plants, printing press factories, and optical equipment houses were producing parts for anti-aircraft guns; rubber mills were furnishing landing boats; confectioners were making

(Continued on page 162)



OWI Photo

Labor and Management work for the Navy—An electrical generator is coupled to a Diesel engine being manufactured for the Navy at a midwest plant. Lower: Rear Admiral Woodward, Chief of the Incentive Division of the Navy Department.



struggle we are facing enemies who have been frantically arming for years while we were busily beating our swords into ploughshares, the Navy sought to enlist every hand and

"Send the Word, Send the Word--Over There"

The U. S. On the Psychological Warfare Front

by

Robert E. Sherwood

Director of Overseas Operations, Office of War Information

THE basic policy of all our psychological warfare for the past year can be reduced to terms as simple and direct as the injunction written by the late, great George M. Cohan back in 1917:

"Send the word, send the word—
Over There—
That the Yanks are coming,
The Yanks are coming—"

We have been sending the word over there, by radio, by press services, by pamphlets, leaflets, posters, movies and even by word of mouth which travels with mysterious speed and effectiveness and penetrates the stoutest walls of censorship and suppression that the Nazis, the Fascists or the fanatical militarists of Tokyo can build about their own and conquered peoples.

"The Yanks are coming!"

No propagandists could possibly devise a better argument than that—nor could any propagandist think up a convincing excuse if the Yanks had failed to arrive—and to deliver the goods.

Words will not win this war. Words will not even win a little part of this war unless they are the convincing heralds of the overwhelming power of our armed forces and the unqualified good faith of our Government. But the right words delivered at the right place at the right time can save the lives of soldiers and sailors of the United Nations who have to do the real fighting and the real winning.

Words can bolster the morale of our friends overseas and thus increase their powers of resistance.

Words can disrupt the morale of our enemies and thus decrease their powers of resistance.

The power of words was proved by Ben Franklin in the first war we ever fought.

It was proved by Woodrow Wilson in 1918.

It has been proved again by Hitler and the Japanese in this war—most forcibly in the conquests of France and Malaya, where the deadly work of the propagandists facilitated the tasks of the armed forces.

But I should say that the most remarkable achievement in psychological warfare was that of the British in 1940-41. For many long months the British, beleaguered on their little island, had nothing with which to fight Hitler except words. But what words they were! "We'll fight them on the beaches . . . We'll fight them in the streets . . . We'll never surrender . . . Never have so many owed so much to so few . . . *London can take it!*"

Those words—hurled into occupied Europe by the B.B.C., dropped in leaflets by the R.A.F., passed from hand to hand by anonymous patriots—those words raised hopes and spirits in hearts from which all hope had fled—those words confounded the all-conquering Nazis and sowed in their people the first seeds of doubt of their invincibility.

Furthermore, those words reverberated around the world and had their effect—par-



ticularly here in the United States, where they helped immeasurably to speed up production, to facilitate passage of the Lend-Lease Law and to vitalize all of our preparations for the war which was declared upon us by Japan, Germany and Italy in December, 1941.

The delivery of such great words to the peoples who must hear them has been the job of the various psychological warfare agencies of the United Nations.

There have been vast areas where no news was available except that which came from Axis sources. At times, even our own troops in lonely outposts in the Southwest Pacific have been informed of the war news only by the inaccurate Tokyo radio.

We have been and still are very badly equipped with short wave radio transmitters, since the United States, which led the world

in the development of domestic radio, had taken but little interest in developing means for broadcasting to the rest of humanity. Now we are adding new facilities as best we may. We have been given direct access to the vastly greater facilities of the B.B.C., so that several times each day the people of Europe can hear the voice of America rebroadcast by the powerful battery of B.B.C. transmitters, long wave as well as short wave.

We have had similar friendly and valuable cooperation with the R.A.F. Within a month after Pearl Harbor, the R.A.F. was dropping millions of American leaflets which gave the text of President Roosevelt's first war-time report on the state of the Nation.

On November 8th, last, the arrival of an A.E.F. in North Africa was heralded by blizzards of leaflets, dropped by American and British aircraft, as well as by President Roosevelt's address to the French people, broadcast simultaneously from more than fifty transmitters on both sides of the Atlantic Ocean.

The real work of psychological warfare, however, is not in the big, spectacular shows which make exciting news, but in the daily, twenty-four hour grind of communicating, by every conceivable means, to all peoples—friends, foes and neutrals—the story of how the United States and the United Nations are going about the winning of this war. We tell them the truth, as best we can determine the truth, for we believe that the truth is mighty and shall prevail.

The question most frequently asked about our psychological warfare is this:

"How can we be sure that anyone ever hears us?"

The answer to that can not be given in statistics. There are no Gallup or Crosley polls in Germany or Norway or the Netherlands East Indies. But we get the answer from our enemies themselves, from their increasing admonitions to their own people to stop believing the lies that are told them by American and British and Russian and Chinese propagandists. Our enemies wouldn't be denying these "lies" if their peoples in ever increasing numbers had not heard or read them.

And we had a pretty good answer from the people of North Africa when our troops landed. According to one report, which came to us from the Algiers radio, French men and women walked along beside our troops as they marched in, and the French were singing, joyously, and the song that they sang was:

"The Yanks are coming,
The Yanks are coming—"

Philippines in the War

by

Manuel L. Quezon

President of the Philippine Commonwealth

THE Japanese General Staff perhaps counted on an easy victory when they ordered the attack on the Philippines.

Only about 14,000 American troops were there to block the way. Nothing seemed necessary but to overwhelm this small force—and then the road would be open for the Japanese to continue the southward march to speedy victory.

But if the Japs thought so, a bitter surprise was in store for them.

92,000 Filipino soldiers instantly sprang to the side of MacArthur's handful of Americans. Overnight, the Philippines became world-wide symbols of dogged courage. Twenty thousand Filipino soldiers and three thousand American soldiers died in the fighting, knowing that they were stemming the enemy long enough for the United Nations to mobilize their far-flung Pacific defenses.

When the Battle of the Philippines was over, the name of the Fighting Filipinos was indelibly written on that special page of history where mankind has placed Thermopylae, and Valley Forge, and the Marne. The Fighting Filipinos had fought for freedom as only free men fight. They and their American allies had upset the time-table of the Japanese advance so thoroughly that, even in defeat, they had accomplished one of the great delaying-actions of all time.

That, in a nutshell, is the historic military contribution which the people of the Philippines, under MacArthur's military command, made during 1941 and 1942 toward the ultimate victory of the United Nations. Just as little Belgium stopped the Germans in 1914 long enough for the Allies to gather their forces for defense, so in this present war fate decreed that the newest outpost of democracy, the Commonwealth of the Philippines, should bravely obstruct the march of the Japanese aggressors in the Pacific.

But there is more to tell about the role of the Philippines in the war than merely a great military saga. In total perspective, my nation is more fundamentally important in ways which are largely non-military—ways which have to do with the things of the human spirit, without which no great military feat such as the Battle of the Philippines is ever possible.

The wartime achievements of the Filipino people have been the outcome of a unique national history that has given us the strength and



and the democratic character which make a people willing to die for their freedom. That is why the Philippines are important in more than merely a military way: we Filipinos are a symbol to the whole world, not only of the spirit of personal sacrifice through which this war must be won, but also of those principles of mutual respect and equality among nations which are basic post-war aims of the United Nations.

Let me stress that, when war came, the President of the United States had the lawful power to call into the service of the United States all the organized armed forces of the Philippines. President Roosevelt did not do this. *Of their own free will*—and mark this well—the Filipino people stood by the United States, placing at the disposal of President Roosevelt not only our Army but all our manpower and everything we had.

The reason is to be found in the enlightened spirit and methods employed by the United States in its relations with the Philippines since 1898. My people have been treated by the people and government of the United States, not as an inferior colony fit only to be exploited, but as a fellow-nation which had a right to independent self-government.

The story of American administration of the Philippines is thus a story of square-shooting which fostered in the hearts of all Filipinos their burning desire for freedom. With American help, the Filipino people achieved constantly increasing self-government, culminating in the Commonwealth established under President Roosevelt in 1935, with complete independence soon to follow.

The end-product of this policy was that, when the Philippines were attacked, we Filipinos had something worth fighting for.

All of the great military feats which the world then witnessed—in Bataan, and elsewhere in Luzon, Visayas and Mindanao during the Battle of the Philippines—were thus a perfectly natural and inevitably outgrowth of applying the freedoms later set forth in the Atlantic Charter. To the people of the Philippines, those principles were nothing new or untried. For years, they had been coming to fruition in the Philippines.

The Filipino people have for all time vindicated the policy of self-determination and have lighted a guiding beacon for the post-war world which is now in the making.



U. S. Army Photos

Last April a battalion of Filipinos was organized in the United States and commenced training at Camp San Luis Obispo, Calif. Above, Capt. Turso G. Fajardo, seated, talks over the training schedule with Lt. A. K. Chavez, and 3rd Lt. Roberto Lim. The latter, a graduate of the United States Naval Academy, is the son of General Vicente Lim who was last heard from in the front lines at Bataan.

The Procurement of Naval Personnel

by

Rear Admiral Randall Jacobs, U. S. N.

Chief of Naval Personnel

IT is a year since the United States Navy, held to prescribed peacetime limits by reaction from World War I, was thrust into the maelstrom of global war—unprecedented in its proportions—unprecedented in its demands.

All the ships and planes which flow in ever-increasing numbers from the productive resources and genius of industrial America count for nothing without the officers and men to man them and make them effective instruments of modern warfare. Thus it is that the procurement of naval personnel goes directly to the heart of war needs—and to meet this responsibility, the Bureau of Naval Personnel has streamlined its functions and “raised its sights” to the highest levels ever seen in the history of our Navy.

Any discussion of the subject naturally divides itself into two classifications—(1) enlisted men, obtained on a voluntary basis by the Navy’s selective recruiting system; (2) officers, also volunteers, accepted by the careful sifting processes of the Division of Naval Officer Procurement.

Most of the officers and personnel of the Recruiting Service are in the field. Only six of the former are located in the Bureau of Naval Personnel. There they perform the administrative work, formulate the policies and guide recruiting activities for the entire country.

Suffice it to say that there are several hundred Navy Recruiting Stations and Substations distributed throughout the country, grouped into five divisions, each supervised by a Recruiting Inspector. Each Main Station is under the direction of an Officer-in-Charge and each Substation is conducted by a Petty-Officer-in-Charge.

How has this Recruiting Service kept pace with the vastly increased demands?

One of its first moves was to augment the staffs of all existing recruiting offices by new assistants, many of them men with sales experience in industry. A new recruiting training school was established and the two existing schools were expanded. As Naval officers with long training and valuable technical experience were called to sea duty, experienced sales managers, men who had trained and directed large sales organizations, were trained, commissioned, and encouraged to apply to the Navy’s recruiting problem the same methods and technique which they had used effectively in business. The vacancies arising from transfers to sea duty were filled as fast as they occurred, with the result that this transformation is now completed.

At the same time the Recruiting Service has undertaken a reexamination of all its methods and all its “tools” in the light of new demands. In one territory, for example, it

found sixty percent of the population located in the area of substations producing only thirty percent of the enlistments. This started a nation-wide move to make all the substations, which are more numerous than main stations, more productive.

Every man in every recruiting station has been encouraged to realize that he shares a part in an important job, and the results depend upon him.

Physical requirements have been modified to remove technicalities. With the wholehearted cooperation of the Surgeon General, the medical section of each recruiting station was overhauled and streamlined.

The prospective fields of enlistments have



been rechecked in every state in terms of population, geography, and distance to the nearest Navy recruiting office. Several states had no recruiting stations. That was corrected. In not a single instance have the steps taken failed to increase Navy enlistments.

Newspaper advertising was undertaken to explain the “what, why, how and where” of Navy enlistment. Preliminary tests proved that advertising could be made to pay, especially when accompanied by the valuable assistance of Civilian Recruiting Committees to augment the activities of the Navy Recruiting Service.

As these measures began to take effect, the curve of enlistments which had been steadily declining after the first few months of onrush following Pearl Harbor, then turned upward.

Supplementing the basic program, many effective promotional plans have been instituted, some originating at headquarters,

more of them in the field. On June 7, six months to the minute after the first bombs were dropped on Pearl Harbor, at nationwide mass inductions, 14,500 men took the Navy oath of allegiance. Members of the United States Congress have given invaluable aid by carrying the story of the Navy’s opportunity for service to every nook and cranny of the country. Two recruiting booklets, “Men Make the Navy” and “What Kind of a Job Can I Get in the Navy?” have translated the facts and the opportunities for Naval service into layman’s language, in accessible form. More than two million copies have been distributed in response to letters, phone calls or personal requests.

As a result of this coordinated program, recruiting of enlisted personnel for August showed a 780% increase over August a year ago, a 262% gain over May of this year. Now current figures surpass an entire peacetime Navy per month.

The enlisted category of the Navy cannot be dealt with as a mass problem. It has many different classifications of work, with smaller numbers of men in each. Most applicants become experts in trades and vocations essential to Naval service; but in the great majority of cases, they are young men without specialized experience when they enlist. The Navy tests them out and trains them accordingly. That this selective recruiting system meets the Navy’s needs in a highly effective manner is demonstrated by their outstanding performance in the Pacific and every other test that confronts them.

Notwithstanding its rapid expansion, the needs of the Navy are comparatively small in relation to other war requirements. Therefore, there is a minimum of interference with other needs.

The average age of men now joining the Navy is so far below that of men who come under the category of experienced or key men in industry as to warrant the belief that little or no interference with industry by voluntary enlistment occurs. In order, however, that industry can have no complaint, enlistments are no longer permitted of men in the deferred classifications of Selective Service (II A, II B, and III B) without approval of the employer transmitted through the local Selective Service Boards.

It is on the basis of these facts and these needs that the Navy feels that its responsibilities can be met most effectively and with the least delay by continuing its voluntary selective recruiting system.

The tremendous expansion of the Naval establishment since the advent of war, has made it necessary to draw more and more on

(Continued on page 141)

Navy Ship's Service Activities

by

Commander J. L. Reynolds, U. S. N.

Director, Welfare Division, Bureau of Naval Personnel

A SHIP'S Service activity of the Navy, whether afloat or ashore, is patronized by Naval personnel and dependents in the same popularly communal spirit as the typical American general store, but regretfully without benefit of the open cracker barrel.

However, it is by no means bucolic, for it caters to such a variety of tastes and demands of naval personnel as to constitute a fair comparison with that manifold merchandise mart—the community shopping center.

It is a source of everything from ice cream soda to jewelry and from photographs to hair cuts. Its mercantile appeal lies in quality goods or services dispensed at such reasonable cost as would bring joy to the heart of a Scotch housewife; they are well within the paying ability of the average American bluejacket.

The selling price of articles sold by Ship's Service Stores is so regulated that the annual net profit of all sales does not exceed fifteen per cent. Each ship or station which operates a Ship's Service Department also operates a Welfare Department to which Department the profits of the Ship's Service Department are transferred. These funds are immediately expended in the interest of welfare and recreation of the personnel involved thereby providing a fund for the Commanding Officer to use in his discretion which would not otherwise be available. This is considered to be one of the greatest factors in maintaining a high state of morale among enlisted personnel.

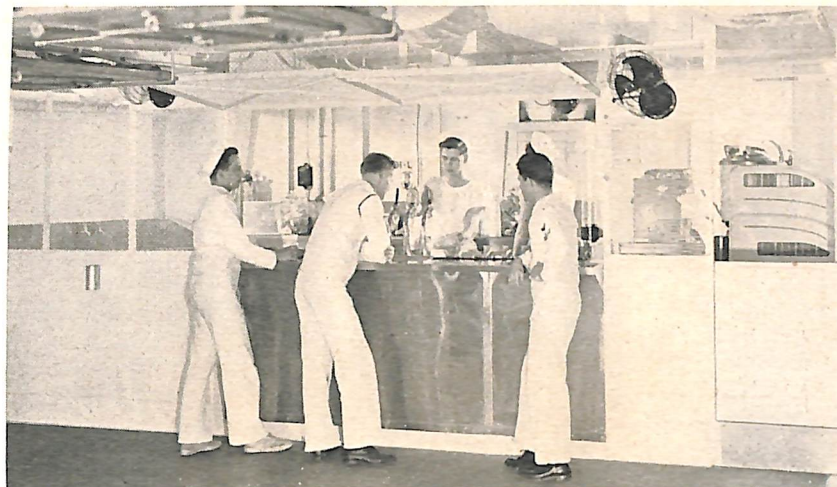
The net result of such an operation is steady satisfied patronage that (a) tends to prevail upon naval personnel to spend with common sense and (b) at the same time does not infringe harmfully on purchases, if desired, from local merchants ashore.

A Ship's Service activity is perfectly sound, serious business and is run according to recognized business fundamentals.

From the standpoint of organization, the Commanding Officer of a ship or shore station has complete jurisdiction over the conduct of all Ship's Service activities within, or pertaining to, his command. This is subject, of course, to the broad general supervision of superior authority. The Commanding Officer appoints the Ship's Service Officer, his assistants and employees, the Auditing Board, and any other Boards that he may deem necessary to the successful operation and administration of the Ship's Service Department. His duties, in this connection, are in addition to and secondary to his duties as an officer in the Navy. The manner in which he performs this additional duty is noted in his

Report of Fitness.

The Commanding Officer does not act as the Ship's Service Officer nor may any officer charged with custody or disbursement of public funds be in any way connected with the operation or administration of the Ship's



U. S. Navy Photos

A popular activity of the Ship's Service Stores is the soda fountain, where ice cream, sundaes, and soft drinks are the order of the day. This scene was taken aboard the USS Charger, a former merchantman converted to an aircraft carrier. Below: Commander Reynolds, director of the Welfare Division, Bureau of Naval Personnel.



Service Department except with the specific approval of the Secretary of the Navy. Such officer may, however, be a member of the Auditing Board and his advice may be required on any matters connected with the Department.

In large commands the Ship's Service Officer is of the rank of Lieutenant or above, while at small stations, where the total number of commissioned officers is not more than three, he may be of Warrant Rank and he is not involved with the administration of the Welfare Fund.

All personnel employed in connection with

the Ship's Service Department of a vessel of the seagoing forces must be members of the Navy or Marine Corps. As in the cases of Officers assigned to Ship's Service activities, the duties of enlisted personnel, assigned to these activities, are in addition to and secondary to the duties of their ratings. In connection with shore stations, the enlisted personnel may be supplemented by the employment of such civilians as the Commanding Officer may deem necessary. Retired or Fleet Reserve personnel is also utilized as far as possible in this connection. Briefly, one carefully selected enlisted man may be detailed as assistant to the Ship's Service Officer for such administrative and supervisory duties as are found necessary.

No enlisted personnel, on active duty, is detailed to duty with the Ship's Service Department within the continental United States except within naval prisons, isolation camps at training stations, and at isolated stations where suitable civilian personnel is not obtainable and then only with the specific authority of the Bureau of Naval Personnel.

Where, for the convenience of enlisted personnel, the barber shop is kept open outside of regular working hours enlisted barbers may be detailed; where the needs of the station require small branch Ship's Service activities, one enlisted man may be detailed for each branch provided the average net profit of the branch activity is less than \$100 a month.

All employees of the Ship's Service Department must be selected on a basis of excellent record and character and should be without extravagant tastes and satisfied to live within their means. Officers receive no compensation for duties performed in the Ship's Service Department. Enlisted personnel is paid extra compensation for employment in these activities when such employment involves work under more arduous conditions, demands longer hours, or entails greater responsibility than is required by the usual duties of his rating.

Activities authorized to be conducted under the Ship's Service Department include:

Store	Cobbler
Restaurant	Presser
Soda Fountain	Photographer
Laundry	Gasoline filling station
Barber Shop	Garage
Tailor Shop	

An enlisted man or civilian employee is detailed as the head of each of these activities and is responsible to the Ship's Service Officer for the merchandise, funds and property of

(Continued on page 164)

Motor Torpedo Boats of the United States Navy

by

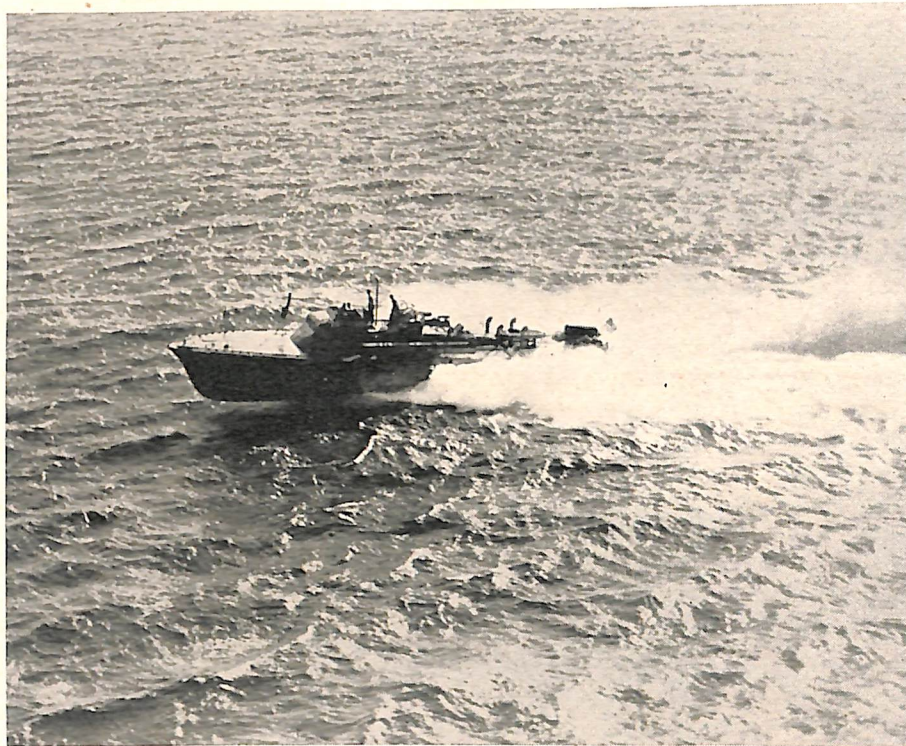
Captain A. Loring Swasey, U. S. N. R.,

Construction Corps

TYPICAL American sportsmanship favors the underdog. The weak team is always cheered loudest; the small, weak opponent of a large and strong force is always the most applauded by a group of spectators. This is typical American sportsmanship, and is reflected in the American attitude towards Motor Torpedo Boats. These are the smallest combatant vessels in the United States Navy, and, consequently, they have achieved a remarkable position in the interest of the Nation. Capturing public fancy as they do, they have been subjected to a tremendous amount of publicity. None of this publicity has been exaggerated. All of the fondest expectations of their designers and builders have been realized. All of this is public knowledge.

A phrase common among aeronautical people is, that given enough power, a barn door could be made to fly. This applies, like wise, to a boat. In looking, therefore, toward an exceptionally high-speed combatant unit, engines were one of the first stumbling blocks, and presented the first problems which had to be met. Research was undertaken, perhaps unwittingly, by many of the small-boat racing enthusiasts, who took motors apart between races, and who operated their engines at extremely high pressures and temperatures. This necessitated the development and refinement of alloys which have made possible the development of a most excellent power unit for this type of craft. The "barn door," however, had to be such that it would be sea-worthy at low speeds as well as at high. Construction means and methods had to be developed to make practicable a hull which would not pound itself to pieces when traveling over the water at extremely high speeds. This could not have been answered by laboratory technique. The forces involved on the bottoms of these vessels are tremendous. "Cut and Try" has been the watchword in the development of this type of craft. Each vessel has been a laboratory of itself. Succeeding vessels incorporate the experience and information gained from the study of its predecessor. We, therefore, find the Motor Torpedo Boat, as it is now built, a combination of laboratory preparations, as far as engineering is involved, and "rule of thumb" design, so far as the hull is concerned. These two intercombine remarkable well to provide this country with one of the finest

small, high-speed motor torpedo boats in existence. A Motor Torpedo Boat is constructed mainly of wood tied together in a most ingenious fashion with wood screws, glue, and various other materials. The extremely large horsepower is secured in the vessel in such a fashion as to make practicable its complete use in propelling the vessel. Complete cooking arrangements have been provided; ventilation, too, has become a built-in feature. By virtue of their size, it is practicable to maintain intra-ship communications during operations to a degree which would be impossible on a larger vessel. This means that each



U. S. Navy Photo
Backlighted against a glittering southern sea, this PT boat, greeting the task force upon its return to Hawaii from the Marshall Island attack, furnished an official Navy Photographer a chance to make this remarkable shot of a mosquito boat. The boat was cruising off Pearl Harbor when the task force returned.

member of the crew is kept aware of the circumstances taking place in the course of an action. It may be said that Motor Torpedo Boats are built like a fine watch; however, like a watch, which, having been finely constructed, is subjected to extreme tests of vibration and general wear and tear.

At the outset of the war, little was known concerning the characteristics of the various pieces of equipment used to form the unit now known as the Motor Torpedo Boat. With the passing of time, however, cooperation between the various manufacturers of this type of craft has made it possible to make use of the advantages discovered by one group of builders in all the other factories building these ships.

At the outset of the program, men were

employed in the manufacture of this class of vessel. However, of late, many of these having been taken away to more arduous tasks, have relinquished their places in the industry to women who now do men's work in a very proud fashion.

The crew of such a Motor Torpedo Boat is extremely small. The living accommodations are Spartan. This results in a very close relationship between various members of the crew. This relationship is begun at an early date in the training of the crew members. Training is established and crews are maintained throughout, as a unit. In view of the

type of service which these vessels render, they often operate for a long time from remote bases. This requires an extremely self-reliant group of officers. Due to the extremely rough riding which these vessels undertake, the crew must be possessed of remarkable stamina. As a consequence, young men are chosen for this work. Under the most arduous conditions this results in an extremely well-balanced and workable unit. The crews have a tough assignment, and are thoroughly aware of the difficulties which are to be encountered. As a result, an extremely great esprit-de-corps is present on this type of vessel. As a part of training, the men assigned to man these vessels are given a familiarization course at the yards of the builders. This enables them to observe intimately the fashion in which their ships are put together, and makes practicable the appreciation on the part of the builders, of the type of personnel assigned to these craft.

All credit and honor belong to the men who operate these vessels. Of these, Lieutenant Commander John D. Bulkley, USN, has come to the fore, using an incredibly keen ingenuity in his appreciation and clever utilization of the capabilities of these vessels.

The first chapter in the use of these vessels in war-time has been recorded in William L. White's book, "We Were Expendable," presenting a fine picture and description of the activities in which these boats engage. Surely the deeds which have been accomplished to date will go down in history; others will follow. After World War II has entered into the history of our Nation, the virtues of this smallest class of combatant vessel will have made it a permanent fixture in the U. S. Navy, as well as in the minds of our people.

Submarines in the War

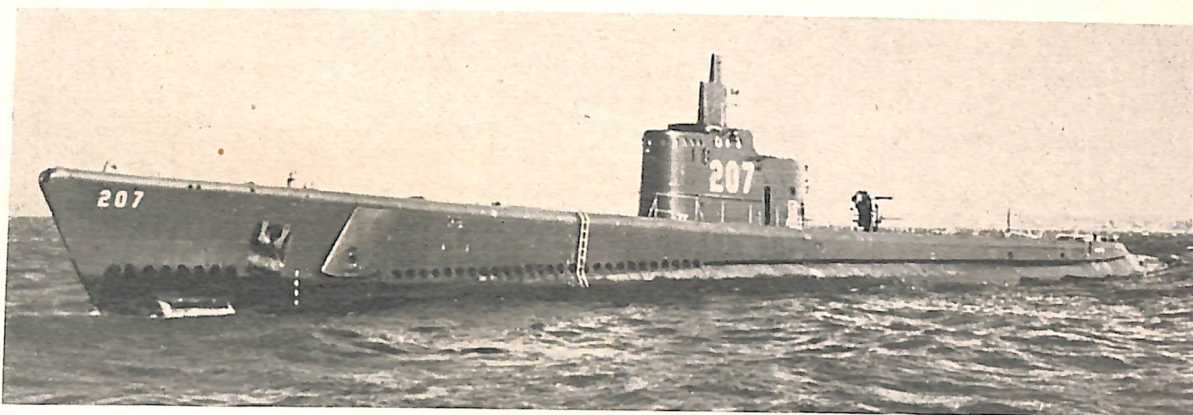
by

Lieutenant Commander Lewis S. Parks, U. S. N.

Staff, Commander Submarines, Atlantic Fleet

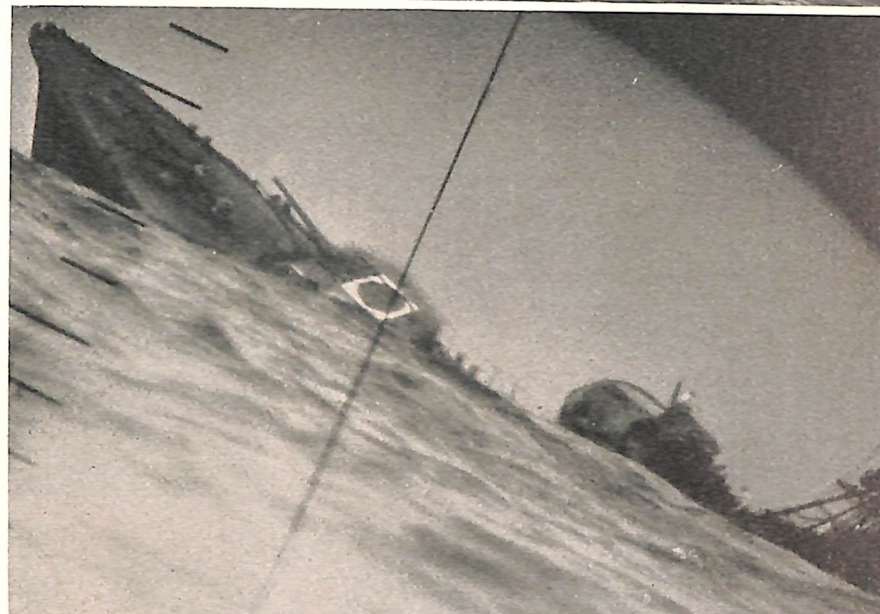
SECRETARY of the Navy Knox recently expressed his appreciation of the fine work which our submarines have been doing in the war zones. He stated that he was "particularly proud" of them as submarines generally had "done a particularly amazing and outstanding job. This is primarily a war of attrition, and there is no arm of the service more important in a war of attrition than submarines."

Life on board a submarine, always interesting and exciting, is doubly so in war time. When in the presence of our own forces they are continuously on the defensive due to difficulties of recognition peculiar to their type. Even approaching their own bases they cannot relax until "all lines are over" due to the enthusiasm and vigor exhibited by "friendly" air and surface patrols. In war zones they are



U. S. Navy Photo

A modern type submarine, the USS Grampus, built by the Electric Boat Company, and commissioned in May of 1941.



U. S. Navy Photo

This remarkable photograph, made by a periscope camera through the periscope of an American submarine, shows a Japanese destroyer of the latest and largest type going to her grave after having been struck by two torpedoes from the submarines from which the picture was taken. The destroyer sank in nine minutes. Note the Rising Sun insignia on top of the turret to the left, and the two men in white scrambling over the conning tower to the right.



U. S. Navy Photo

Lt. Comdr. Lewis B. Parks, USN



Capt. E. F. Cutts, USN, Commander of the U. S. Submarine Base and Submarine School at New London, Conn. Lower: On the conning tower of a submarine at the Submarine Training School, a Chief Petty Officer instructs students.



fair game for all, friend and foe alike. Instead of reckoning their battle time in minutes, as do the aviators, submarine crews must count theirs in weeks or months. "Eternal vigilance is the price of safety" has long been one of the mottos of this service.

In enemy controlled waters most of their daylight hours are, perforce, spent submerged. There are many men who never see the light of day from the beginning to the end of a long patrol. Because of the necessity of being able at all times to instantly clear the bridge, the peace time practice of allowing the crew to "take a blow" topside must be dispensed with.

Discipline on board, while far from being lax, is more informal than that usually encountered elsewhere in our Navy. It is maintained primarily by a feeling of mutual respect—respect of the men for their officers and of the officers for their men who constitute one of the finest and most capable groups to be found any where. Although they like the additional pay which they now draw, it is the esprit de corps that exists and the camaraderie among submarine sailors that really holds them to their jobs. There are no USO's at our advance submarine bases nor do Hollywood movie stars or name bands entertain. Sub-

mariners must do without these artificial morale stimulants. They get their morale uplift when they see and hear a torpedo find its mark.

A submarine is a "lone wolf" and must accomplish its work without assistance from
(Continued on page 155)

Functions of the Provost Marshal General in the War

by
Major General Allen W. Gullion
The Provost Marshal General

THE Provost Marshal General's functions in the present war differ greatly from those of his predecessors. During both the Civil War and the World War the Provost Marshal General was concerned, primarily, with the operation of the draft acts. The nearest approach to the functions exercised presently was by the Provost Marshal General of the American Expeditionary Forces who had charge of military police, investigations of crime among the armed forces, and prisoners of war.

The operations of The Provost Marshal General today cover a broad field. The most widely recognized is that of supervision of the Military Police. At the time the office was activated in July, 1941, soldiers of all branches of the service were performing military police functions. There was no central authority to develop doctrine, to coordinate, or to plan. In September, 1941, however, there was created a separate Corps of Military Police, a new branch of the service, under the supervision of The Provost Marshal General.

Since September, 1941, the following types of Military Police Units have been activated and trained: Military Police Battalions for protecting vital installations; Military Police Escort Guard Companies; Military Police, Post, Camp, or Station; and Military Police Units with the Field Forces.



Army Signal Corps Photo
A British Military Policeman and a United States Army Military Policeman walk their beat side by side in a Northern Ireland town where United States troops are stationed.

New Tables of Organization and Mobilization Training Programs have been prepared for all types of Military Police Units. In Feb-



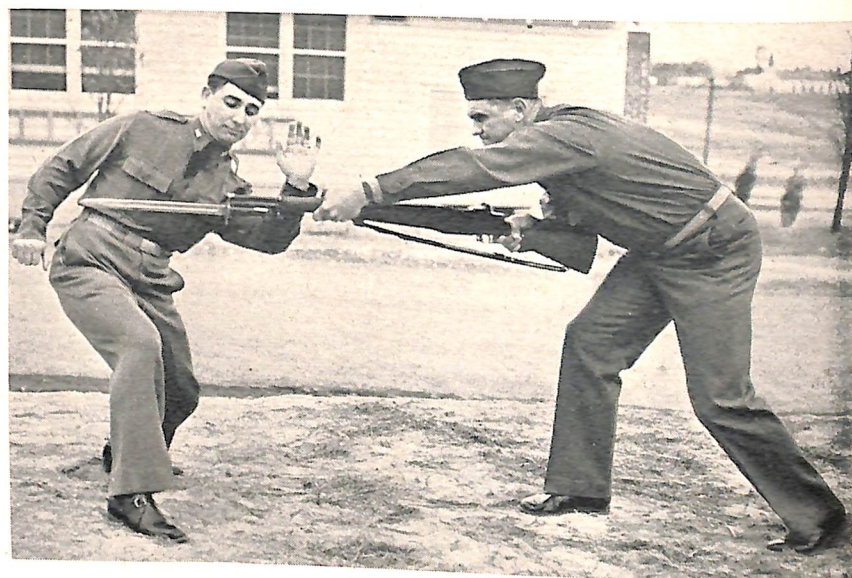
ruary, 1942, a Provost Marshal General's School was opened at Fort Myer, Virginia. In May, due to the rapid expansion of the Corps of Military Police, the School was moved to Fort Oglethorpe, Georgia, and named The Provost Marshal General's School Center. Four schools are being conducted there; the Refresher School (for officers recently placed on active duty), the Advanced School (for officers on Military Police duty), the Officer Candidate School, and the Investigators School. In April, 1942, a Military Police Replacement Training Center was established at Fort Riley, Kansas, where enlisted men receive their basic training and specialized instruction. It should be understood, however, that The Provost Marshal General exercises no command over the Military Police. His supervisory functions are analogous to those of the former Chief of Infantry.

The Provost Marshal General also has supervision over certain investigative functions. He is charged with investigating the loyalty and trustworthiness of civilians employed or applying for employment in military establishments. This involves su-

pervising and evaluating the work of several thousand investigators. The loyalty investigative service is available to any military establishment which requests it. The number of requests per month has increased rapidly, from 2,500 in January, 1942, to 56,000 in October. Notwithstanding this increase in the number of requests, there is no backlog of uninvestigated cases. Thus new requests are given immediate attention.

One of the most important functions concerns the internal security of the nation. General plans to counter the activities of fifth columnists and to handle potential domestic disturbances and disasters are under the supervision of The Provost Marshal General. He is charged also with supervision of the protection afforded many thousands of plants engaged in the war effort. Primary responsibility for the protection of privately owned plants and other installations essential to the war effort rests upon the owners and operators and upon local governments. However, it is the responsibility of The Provost Marshal General to take steps to provide protective facilities not available to operators or local governments when, in the opinion of the military authorities, such protection is necessary in the furtherance of internal security. In discharging this responsibility, Army inspectors, under the jurisdiction of field agencies, survey all war plants. In addition, a procedure for the identification and clearance of visitors has been developed; a fingerprinting program initiated for all employees in war production plants; accident and fire prevention programs instituted; and guards at war plants enrolled as auxiliary military

(Continued on page 151)



Army Signal Corps Photo
Instruction at the Provost Marshal General's School. Lt. R. G. Hooks is lunging a bayonet towards Lt. A. R. Flores, national jiudo champion in 1935, who demonstrates a bare hand defense.

Ordnance Department Speeds Herculean Task

by

Major General Levin H. Campbell, Jr.

Chief of Ordnance, U. S. Army

THE fighting weapons of the American soldier have been developed and produced for him by the Ordnance Department of the U. S. Army ever since it was created by an Act of Congress in 1812. Its six research and manufacturing arsenals together with a few contracts placed among civilian factories sufficed in time of peace. Since World War I, a profound change has taken place. A whole new array of fighting weapons has been created, perfected, and put to full use. Included are tanks, self propelled artillery, high angle, fast shooting anti-aircraft guns, half track cars, scout cars, etc., etc., all operating under their own power and at high rates of speed. The fighting forces as well as their weapons have been put on wheels, armies have been mechanized, the automotive principle has been adopted and its effect on the Army has been even more profound than it was on civilian life. Today the mechanized division has 32 horsepower for every soldier in it.

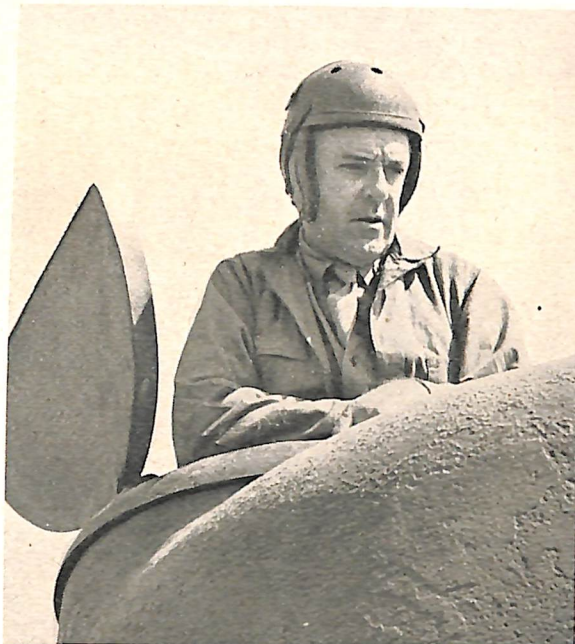
The job of developing and equipping the U. S. Army with this materiel as well as the more than 1,700 other items including pistols, rifles, machine guns, anti-aircraft guns, trench mortars, hand grenades, tanks, armored cars, scout cars, ammunition, cannon of all sizes, shell, fire control instruments, bombs, etc., is a Herculean task, but the Ordnance Department is taking it in its stride. It has expanded its arsenals; expanded its 13 Ordnance District Offices; it undertook the conversion of something like half of our civilian industry to war production; it spent sev-

eral billion dollars erecting and equipping Ordnance owned, privately operated, factories all over America; built up a new explosives industry; took over the motor transport

column 30 miles long if placed at 10-yard intervals. There are 2,434 motor vehicles and the prime movers tow 275 trailers and 116 guns. Together the 16,129 men and officers and the equipment of such a unit weigh 3,753 tons and would require 1,707 freight cars or 17 trains each a mile long to move it. The maintenance of these vehicles is added to the servicing of the 1,700 other major items produced by the Ordnance Department.

When a tank, gun or other fighting tool is put out of action, Ordnance troops must repair it in the shortest possible time. Therefore, rolling machine shops together with repair trucks for many special purposes, wrecking trucks weighing 36,000 pounds each and equipped with 10-ton cranes and winches capable of pulling 55,000 lbs., etc., etc., were developed and produced in mass for use in the zones of combat. Ordnance troops require special mechanical training and technical knowledge for the work. Hence, whole regiments of technicians already trained in more than 50 trades were recruited direct from civilian life through the Affiliated Ordnance Unit system specially created for this purpose. Many training centers were erected and equipped to train them in the servicing of motorized and other war materiel. A huge reserve of spare parts was developed and the personnel created for handling, storing, shipping and distributing to theaters of war all around the world. And then the Ordnance Department was assigned the vast motor vehicle section. With the design, purchase, and maintenance of motor vehicles, combat and otherwise, now centralized under the Ordnance Department, an Ordnance Tank Automotive Center has been established in Detroit, Michigan. This in addition to the seven motor supply depots scattered throughout the country to furnish motor supplies and spare parts; light and heavy maintenance companies of troops to care for and maintain vehicles; truck companies

(Continued on page 147)



U. S. Army Photo

Maj. Gen. Levin H. Campbell, jr., Chief of Ordnance, inspects an M-4 tank at Aberdeen Proving Ground. He is wearing tank helmet and coveralls.

supply for the Army and last but not least, is in process of creating the greatest war materiel maintenance system this world has ever seen, for a trusted friend who lets you down in a crisis is as nothing to a weapon that fails its use in battle.

The colossal proportion of this maintenance (as well as production) can be partially gaged from the fact that the vehicles of a motorized triangular division will make a



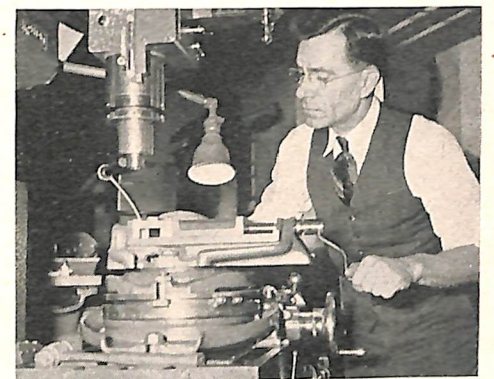
OWI Photo by Palmer

The finished assembly of a 37-mm. anti-aircraft gun carriage receives final adjustments in an eastern Arsenal.



Signal Corps Photo

To "Keep 'em Rolling" in the Field the Ordnance Department operates many mobile repair units. These Ordnance soldiers are doing a bit of welding.



OWI Photo by Palmer

John C. Garand, inventor of the Army's semi-automatic shoulder rifle, at work in the experimental model shop, Springfield Arsenal.

Charting the Seas for War

by

Rear Admiral G. S. Bryan, U. S. N. (Ret.)

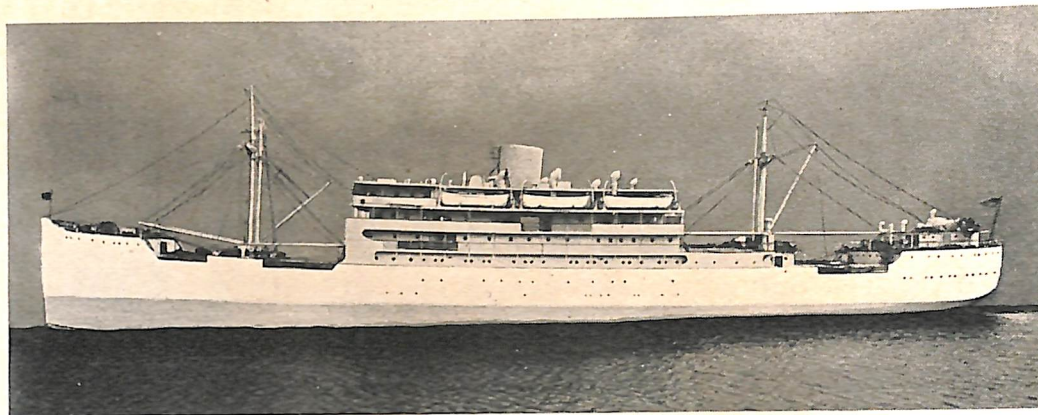
Hydrographer of the Navy

PROBABLY the least spectacular, but nevertheless one of the most essential war activities of the United States Navy, is the work of the Hydrographic Office in carrying out its mission which, as stated in its publications is "to collect, digest, prepare, and issue all information calculated to afford the maximum possible navigational safety to ships on the high seas and to aircraft operating over the sea routes." This in wartime becomes a task of tremendous proportions, for added to the natural perils of the sea are the additional dangers contributed by friend and foe alike, in the form of minefields, danger areas, extinguishment or removal of navigational aids, and many other hazards affecting the safety of shipping.

All vessels of the Navy, both surface and air, must be supplied at all times with the latest charts enabling them to proceed with the utmost dispatch to any quarter of the globe. The nautical chart is an essential instrument of war without which not a ship can sail, a plane operate, sinews of war be delivered, or strategic plans successfully laid. The compilation, production, and distribution of these charts is one of the primary duties of the Hydrographic Office, and some idea of the ever increasing work of the office may be gleaned from the fact that prior to hostilities the normal output of charts was approximately 450,000 annually, whereas during the past year, it ran in the neighborhood of 13,000,000 charts.

One reason for the increase in the number of charts is the necessity of covering areas which in normal times are of little importance, but are now vital to the successful prosecution of the war. In peacetime, the Hydrographic Office had employed but two survey vessels which were engaged in a long range program of surveying areas primarily of commercial importance. With the advent of war, the need arose for charts of strategic areas and bases. Today, the Hydrographic Office has ten survey vessels in widely separated parts of the world, some with facilities, where the occasion demands, for producing necessary charts on the spot. The exigencies of war also require the preparation of many special charts for specific purposes, not only for the Navy but also for other governmental agencies. Naturally, these charts cannot be discussed here, but they form another valuable contribution towards the winning of the war. There is one chart that can be mentioned,

however, and that is the Pilot Chart, with its delineation of winds and currents. The government, realizing its value to the mariner, now requires that each lifeboat on every American ocean-going vessel be equipped with a Pilot Chart in a special metal con-



The Navy Survey Ship, USS Bowditch, named for Nathaniel Bowditch, author of the famous work on navigation. This vessel is used by the Navy Hydrographic Office as a survey ship. She was formerly a passenger steamer of the Grace Line running between New York and the west coast of South America. Below: Rear Admiral Bryan, Hydrographer of the Navy.

U. S. Navy Photos



tainer.

The establishment of theatres of war all over the globe has also brought a great demand for the description of coasts, port facilities, and navigational aids of obscure localities through the issuance of new Sailing Directions, Air Pilots, and other memoranda, which are constantly being augmented as the

war progresses.

Information on sea water temperatures, ocean currents, and other cognate oceanographical phenomena are playing a most important role in the present conflict, and here again the Hydrographic Office, which has for many years been engaged in the study of these subjects, has been able to supply much valuable data for projects connected with the war effort.

Another phase in the work of the Hydrographic Office is the prompt dissemination of navigational information to the navies of the allied nations and to their merchant marines. All material relating to changes in navigational aids, establishment of minefields, channels to be followed, and in-

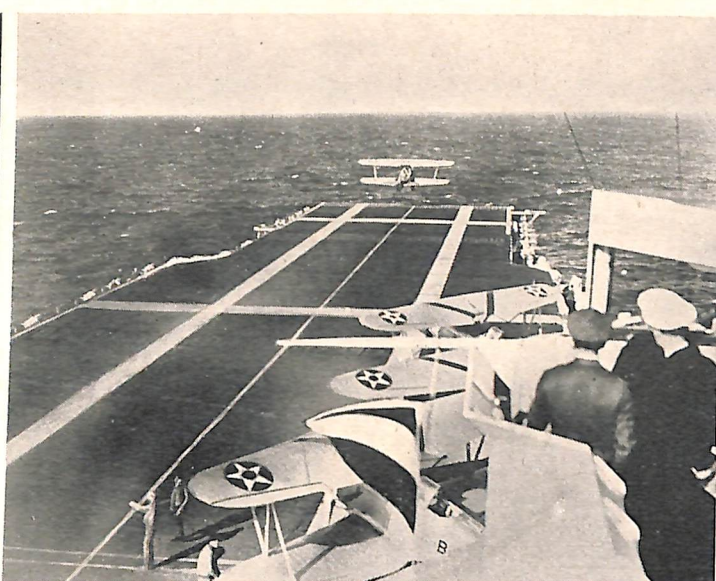
formation on drifting dangers such as mines, wrecks, icebergs, etc., is expeditiously placed in the hands of proper authorities, through the medium of radio, the Daily Memorandum, Notice to Mariners, Hydrographic Bulletin, and certain confidential publications.

The great volume of work now carried on by the Hydrographic Office has naturally necessitated a vast expansion of the office physically. For many years, housed in the Navy Department, the office has been severely handicapped by a lack of space and proper facilities. With the outbreak of war in Europe and the resultant curtailment in the work of foreign hydrographic offices, the increased work load imposed on the Hydrographic Office began to create an impossible situation. It was therefore decided that the office should be removed from the Department. A building especially designed to serve the requirements of the varied activities of the office was erected at Suitland, Maryland, and during the month of October of this year all divisions of the organization were transferred to the new permanent building.

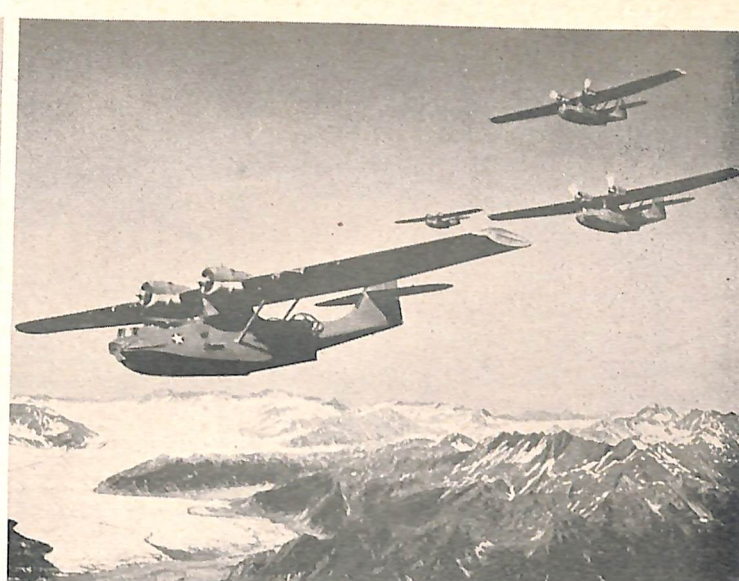
Here, with a personnel that has risen from a peacetime complement of 175 to an all time high of approximately 700 persons, and equipped with the latest machinery for chart production, the Hydrographic Office is working day and night charting the seas for the war in order that they who venture on the dark waters defending our shores and carrying men and supplies to our far flung battle lines may be afforded all available intelligence for the safe navigation of their vessels. This is the contribution of the Hydrographic Office towards the final victory.



Peeling off—Starboard wing up, port wing down, a North American Scout Trainer peels off, showing clearly the details of its understructure.



Taking off from an aircraft carrier.



U. S. Marine Corps Photo
War-time Alaska—PBV's, the Navy's Catalina Flying Boats, patrol the indented and complicated Alaskan shore line.

The Bureau of Aeronautics, Navy Department

by

Rear Admiral John S. McCain, U. S. N.

Chief of the Bureau of Aeronautics

THE function of the Navy's Bureau of Aeronautics can be defined in very few words: to provide the United States Fleet with the necessary quantities of the finest combat airplanes and combat pilots that can be produced. In wartime there can be only one measure of how successfully the Bureau has fulfilled its function. That measure, of course, is the measure of our success against the enemy. In the year that has just gone by, we have had ample opportunity to see how naval aviation has stacked up in action.

The spearhead of our first offensive action was the raid of carrier-based airplanes on the Marshall and Gilbert Islands on the 1st of February. The Japanese won't forget that one for a long time to come. Later in February a Japanese force attacked one of our carriers off Bougainville in the southwestern Pacific. Our fighter pilots shot down both of the enemy patrol planes sent out to locate our forces, and then shot down sixteen out of the eighteen Japanese bombers that attacked.

The Marshall and Gilbert successes were repeated, first at enemy-held Wake Island, then at Marcus Island. Damage to enemy shore installations would take months to repair. Then came the action at Salamaua and Lae on New Guinea. Our carrier-based dive bombers, fighters and torpedo planes roared over a mountain pass and dropped down on a large Japanese force. These airplanes sank two Japanese heavy cruisers, one light cruiser, one destroyer and five transport and cargo ships. Two other destroyers and four other enemy vessels were damaged. Our losses were one dive bomber.

The pattern of this attack was repeated at enemy-held Tulagi on May 4th. One light cruiser, two destroyers, a cargo ship and four gunboats were sunk. Five Japanese seaplanes were shot down. It cost us two fighters and a torpedo plane.

In the Battle of the Coral Sea on May 7th and 8th our carrier-based airplanes went to work on a Japanese force which was advancing on Port Moresby. A Japanese carrier and



U. S. Navy Photos

Just prior to becoming Chief of the Bureau of Aeronautics, Rear Admiral McCain was commander of the Naval air forces in the South Pacific. He is shown here, left, with Major General Alexander A. Vandegrift, USMC, commander of the Marines at Guadalcanal.

cruiser were sunk. Two other carriers were badly damaged and ninety-one enemy airplanes were shot down. We lost the Lexington, but saved nearly all of her airplanes.

Twenty-seven of our planes were lost in combat.

At Midway, in June, we lost another carrier, the Yorktown. The Japs lost two cruisers, two destroyers, and four carriers, the Kaga, Akagi, the Soryu, and the Hiryu. Of later actions in the Aleutians and the Solomons, as in the Atlantic, little can be revealed at this time.

This record is impressive, but it is only the beginning. I would like to emphasize that the successes of naval aviation to date have been accomplished with types of airplanes which were already in active service at the beginning of the war. Principally, these were the Grumman "Wildcat" fighter, the Douglas "Dauntless" scout bomber, and the Douglas "Devastator" torpedo bomber. Great as has been the performance of these airplanes under the guidance of our pilots, we may count on highly improved performance from the new types which are now on the way. These types represent years of the most painstaking development in airframe design, engines, armor, and fire-power. They include outstanding airplanes in every combat type—dive bombers, fighters, torpedo planes and long-range patrol bombers. We can say confidently that they will further advance the Navy's lead in combat airplane design.

But superlative types of airplanes are by no means enough. We must have these types in the necessary quantities. The Navy's announced program of 27,500 airplanes must not be regarded as final. No one can foresee how many airplanes will be ultimately required. We need all we can get.

In this connection the members of the aviation industry have already solved the hardest part of the problem. Half a million men and women in the airframe, engine and propeller plants of this country, joined by tens of thou-

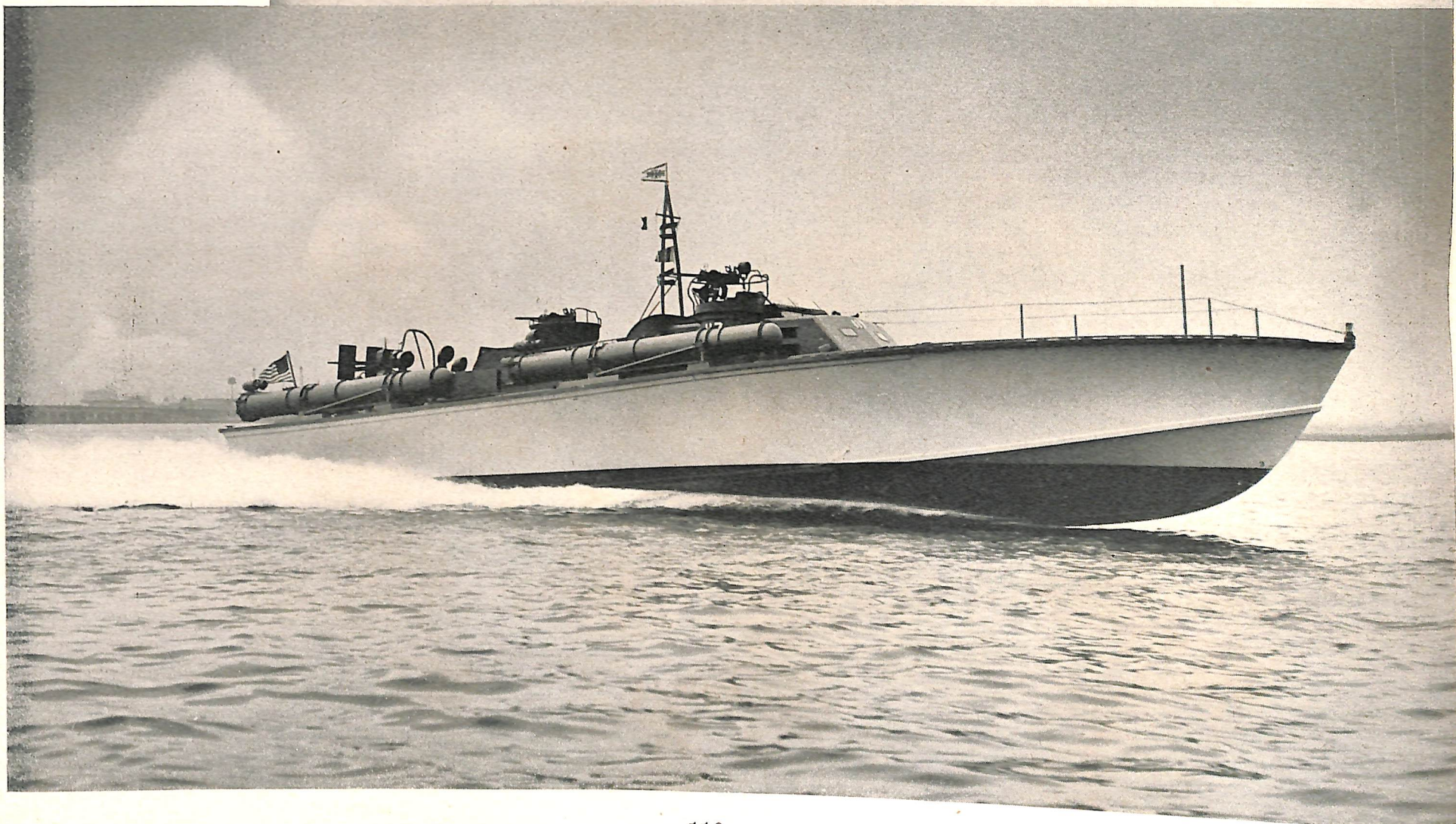
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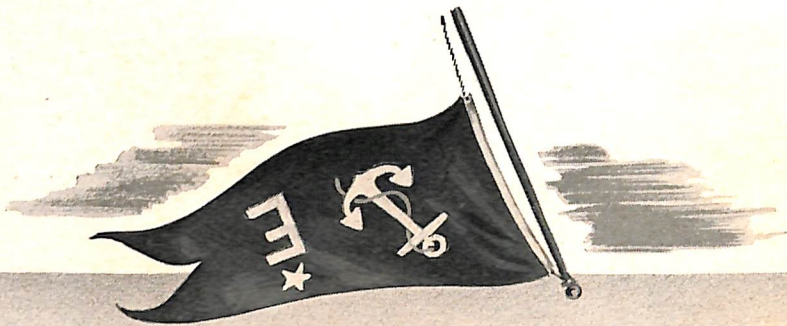


TORPEDOES . . . SERVED "AMERICAN STYLE"

. . . a deadly diet for the Axis

The Submarines and PT Boats built by the Electric Boat Company for the U. S. Navy can out-speed, out-shoot and out-maneuver our enemy's best.





ELCO NAVAL DIVISION
Motor Torpedo Boats
BAYONNE, N. J.

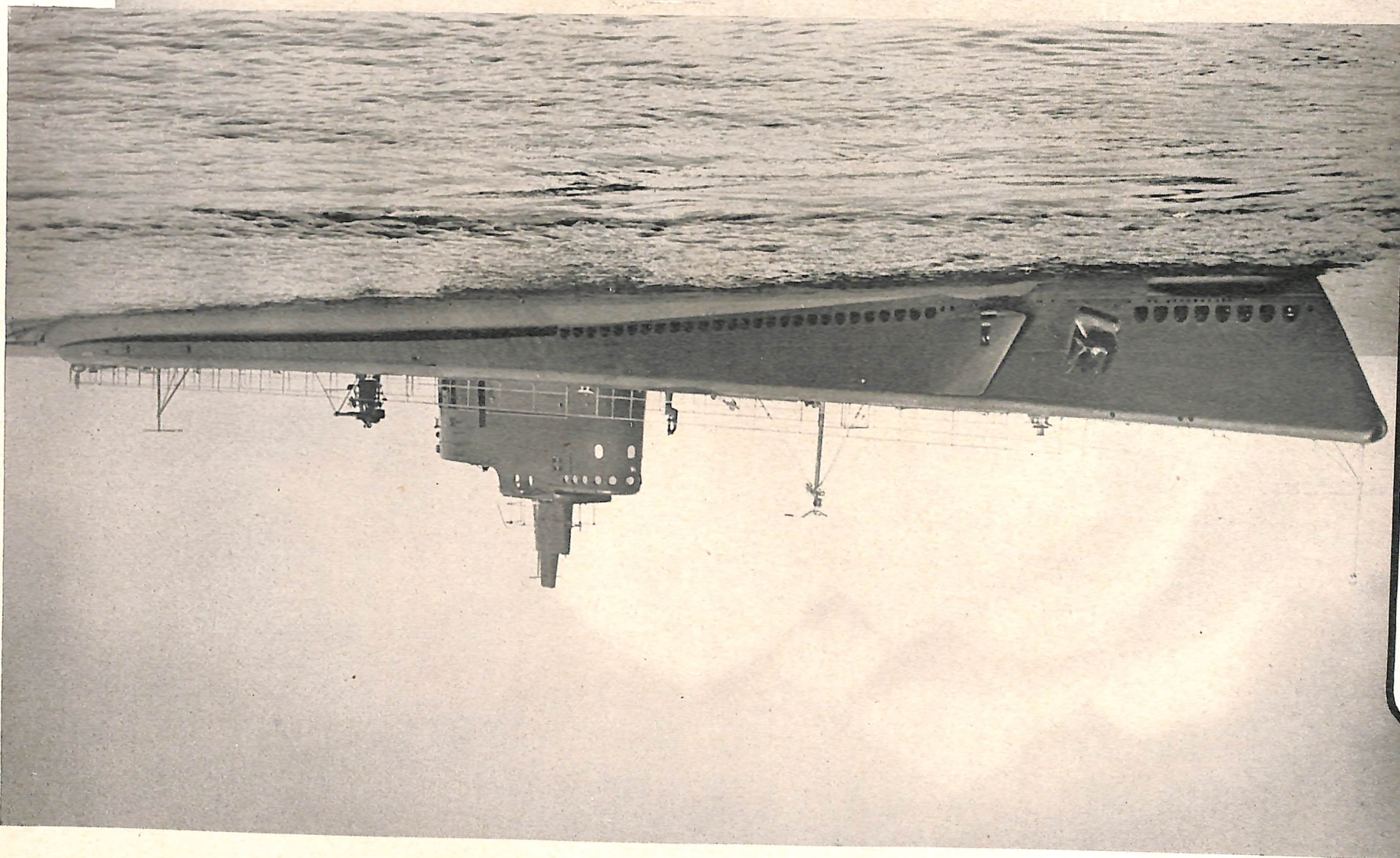
NEW LONDON SHIP and ENGINE CO.
Submarines
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ELECTRO DYNAMIC WORKS
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BAYONNE, N. J.

ELECTRIC BOAT COMPANY

Boats are officially credited with having PT'd to death such enemy giants as cruisers, airplane tenders, transports, tankers, etc. Submarine production at Groton, already multiplied many fold by plant expansion and improved methods of construction, is now again being augmented by the additional large capacity of our Victory Yard. The weekly output of Elco PTs gains continually under Elco's famous streamlined assembly methods. And of course all this extra *quantity* still must and does meet every unrelenting standard of U. S. Navy *quality*.

Our fabulous little Elco Motor Torpedo aged 133 enemy ships within 11 months. are officially reported to have sunk or damaged up in communities from the battle America's advanced Naval weapons is piling up in communities from the battle. Dramatic evidence of the superiority of by the Axis. will out-perform anything being produced demanded and acquired equipment that by any nation. As a result our Navy has Its standards of quality are the highest set ing taskmaster: the U. S. Navy. E work for the world's most exact-



The Development of Tank Destroyers



by

Major General A. D. Bruce

Commanding, The Tank Destroyer Center

EIGHTEEN months ago an independent combat team such as the Tank Destroyers, designed exclusively for tank destruction, was but a vague gleam in the eyes of the Planning Branch of the General Staff in Washington.

This year, on September 18th, Camp Hood, Texas, home of the Tank Destroyer Center, was officially opened for business. And "officially" is used in a purely rhetorical sense, since the Center had been functioning as a training area for many months prior to its ceremonial christening.

In May, 1941, the Planning Branch made an intensive survey of all things pertaining to antitank warfare. Defense against tanks had reached a critical point; something drastic had to be done. The subject was given A-1 priority.

There were appointed antitank officers in every division, corps, and army, with the thought in mind of developing a specialized cadre of men with but one particular mission—that of tank destruction.

In July, 1941, a conference was held and senior officers of all branches debated the questions of towed versus self-propelled mounts, of organic versus independent antitank units. Provisional antitank battalions were organized, and their experimentation on maneuvers carefully studied.

A directive of May, 1941, stated, in substance:

"Although defense against tanks is the responsibility of all branches, it is possibly beyond the scope of any one arm and requires the development of a special force, or semi-independent combat team, composed of elements of all arms, capable of great mobility and *active* rather than *passive* defense tactics."

On December 1st, 1941, at Fort Meade, Maryland, the Tank Destroyer Tactical and



Many are the wiles of tank hunters. Here a Tank Destroyer soldier is ambushing a tank with a sticky grenade.



Major General Andrew D. Bruce

Firing Center was activated.

The name Tank Destroyer was chosen since it epitomized active aggressive action as opposed to passive resistance.

The mission of the T. D. T. and F. C. was to organize a combined School, Planning Board, and Unit Training Center, to develop tactical doctrine and training methods.

Fighting equipment presented the biggest problem. The Board realized it would be months before the ideal gun and mobile mount could be designed, tested, and put into production. Both halftracks and 75-mm's were available. Though neither gun nor mount were precisely the answer, the combination most nearly approached the self-propelled super-weapon.

As for an armed reconnaissance vehicle—twenty-five dollars bolted the 37-mm to the three-quarter ton Fargo. Too, unbolt the gun, and the mount was still usable as a QM vehicle. Thus, economy, commercial production, mobility, and gun were all satisfied in expedients.

Meanwhile, the Center expanded. They needed elbow room. They found that room in Texas.

In January of this year, a site was chosen in Central Texas, near the small town of Killeen. Construction of the cantonment began. The Center mushroomed. Officers reported in droves, to the School, to the Advanced Unit Training Center, to the Board. Headquarters of the Center was moved from Fort Meade to Temple, Texas, near the Reservation. All available office space in the town was utilized. The acute housing problem, the lack, and hur-

ried improvisation, of training facilities, the organization of the various instructional departments, all presented difficulties.

The First Officers' Orientation Course, held in May, found the officers quartered in private homes in the nearby town of Gatesville, schooled in the municipal auditorium, trucked to the reservation for field work.

There was no thought of waiting for the completion of the cantonment to inaugurate the Center as a training area. Time was vital. Battalions were brought in to the Unit Training Center commanded by Brig. Gen. Richard G. Tindall, and lived in the field, in tents, under theater of operations conditions, drawing equipment and food from rail and truck heads, purifying creek water.

The T. D. School, under the able command of (now Brig. Gen.) Hugh T. Mayberry, from its headquarters in Temple, was feverishly preparing training aids, coaching instructors, organizing its departments, in anticipation of the training of thousands of men.

The Board, now under the competent direction of Colonel Ray C. Montgomery, was busy formulating doctrine, writing manuals, crystallizing their theories on equipment in conjunction with the Ordnance Department.

During the latter part of August, troops began to occupy the cantonment area at Camp Hood, named in honor of the fighting General of the South, John Bell Hood, whose Texas Brigade gained immortality in the Civil War.

In the Center, every known method of tank destruction is taught, from the massed fire of the mobile, self-propelled heavy weapons, to the ambushing of tanks, guerrilla-fashion, by the individual soldier armed with Molotov cocktails and sticky grenades.

(Continued on page 143)



Main weapon of the Tank Destroyers is the 75-mm. gun mounted on specially designed half-track cars. This view shows the crew firing from behind their armored shield.

THE THREE CANNONEERS!

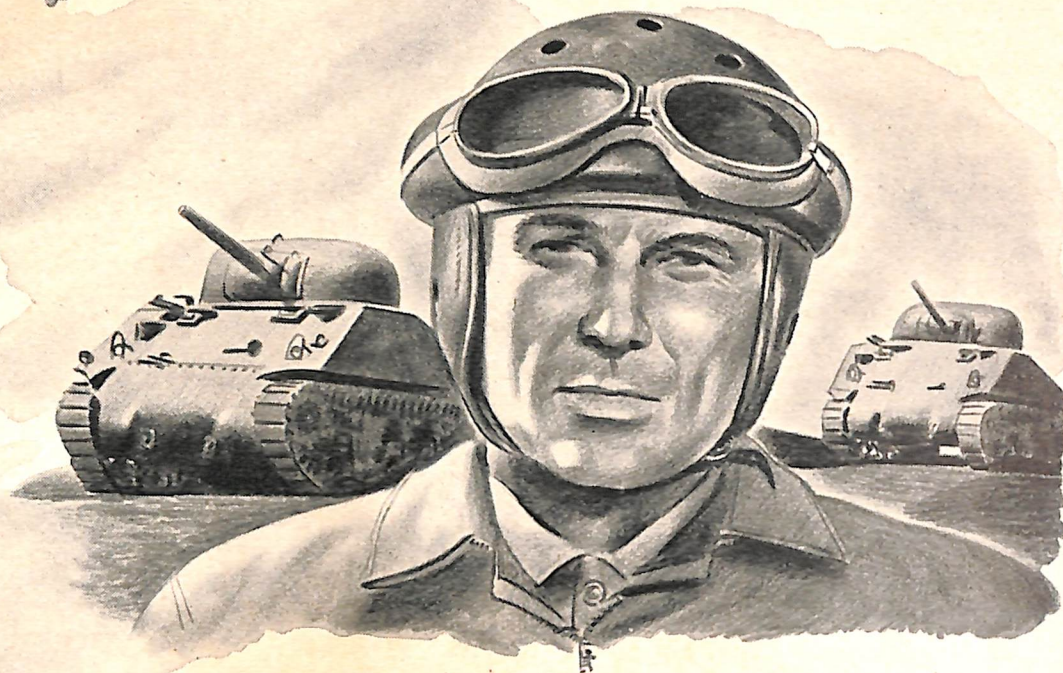


*All for One—and
One for All!*

Like Alexandre Dumas' immortal Three Musketeers, the cannoneers of the Army's Air Force, Armored Corps, and Artillery team together with the single purpose of Victory for all.



THIS IS AN ALLIED FIGHTING ACE who fires as he streaks through the sky—blazing away with a fast-shooting cannon from the cockpit of a fast-stepping plane. He's tops in flying skill and cool fighting courage.



THIS IS A TOUGH, HARD-HITTING GUNNER of the mobile armored corps. He fires a long-range, high-velocity cannon from the turret of a high-power tank. He shoots fast—he shoots straight—with deadly effect on the enemy.



THIS IS A QUICK-THINKING, QUICK-SHOOTING MARKSMAN of the field artillery, who blasts gaping holes in enemy ranks, with high-explosive shell. His barrage will pave the way for the final offensive.

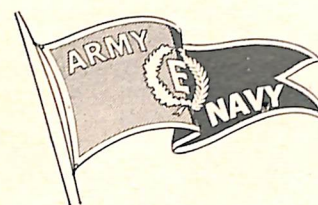
OLDSMOBILE PRODUCES "FIRE-POWER" FOR ALL THREE COURAGEOUS CANNONEERS



The fast-firing, hard-hitting guns in noses or wings of thousands of fighter planes are Oldsmobile-built airplane cannon. From

Oldsmobile, too, come the high-velocity, large-caliber cannon used in many of our Army's newest big tanks. Plus many different types of shell used in tank cannon, field pieces, howitzers and anti-aircraft guns! This flow of fire-

power from Oldsmobile started more than a year ago. Today, the largest working force in Oldsmobile history is at the service of the "Cannoneers," giving their best in "work-power" to give them the best in "fire-power."



The joint Army-Navy "E" pennant, highest of awards for outstanding records in war production, flies over the Oldsmobile arsenal.

FOR VICTORY, BUY UNITED STATES WAR BONDS!

OLDSMOBILE DIVISION OF GENERAL MOTORS

★ VOLUME PRODUCER OF "FIRE-POWER" FOR THE U. S. A. ★

America's Desert Soldier

by

Major General Alvan C. Gillem, Jr.

*Commanding General, II Armored Corps**

IN the blazing heat of the California desert, America is moulding a new type of soldier.

He is a soldier who is learning, first-hand, lessons of the law of survival, the advanced science of modern war, and the art of adapting his innate initiative and self-reliance to conditions which closely approximate those he must face in actual combat.

His classroom is the Army's new Desert Training Center, a vast 12,000,000-acre testing ground for men and machines, which encompasses huge mountain ranges, hundreds of miles of desert wastes, and a river obstacle. Few if any of the man-made limitations which normally hinder large movements of troops elsewhere in the country are present.

The first maneuvers in the area, designed entirely for armored and motorized elements, covered two months of almost continual operations, under condi-

tions unique in troop training. For 10 days before going into the field, men spent their time becoming acclimated to the intense heat.



Three low-level attack bombers swoop in on two tanks during air-ground operations in the California desert. The picture shows typical terrain, indicating some of the difficulties in camouflage.

Prior to the start of the large-scale maneuvers, units got the "feel" of the desert on small problems, operating vehicles across-country in deep sand for the first time. From that point on, during days and nights of simulated warfare, men began learning the little lessons so vastly important in combat.

They found out how easy it is to stall a vehicle because of failure to make a minor adjustment; found out the importance of water and food—paying the penalty of hunger and thirst if supplies were lost or not maintained. They learned that, if they lost their guns, their shoes, or their shirts, replacement was difficult.

They found themselves "killed" or "captured" because of small mistakes.

From mid-August to mid-October, while exercises were under way, 100-degree temperatures—in the shade—were the rule rather than the exception. Ground temperatures of 150 degrees at noon were not unusual. Conservatively stated, the atmosphere inside the tanks was something less than cool.

Tank crews found they had to wear gloves to avoid being seared by the hot metal. Officers and men consumed daily rations of from three to six salt tablets, to ward off heat prostration. Water carried in canteens was too hot to use, and desert water bags were universally carried.

At night, temperatures dropped sharply; when the men crawled out of their bedrolls they shivered in the brisk air of the

early morning. There was little rainfall, but there were high winds and sandstorms.

Both men and equipment stood the test satisfactorily. Out of the sand and heat came the new American desert soldier, in superb physical condition. He was tanned, hardened, keen and spoiling for a fight. He had begun to get an idea of what he was up against.

Without exception, the physical condition of officers and men improved during the guelling two months. From a military viewpoint, the results were impressive. Leaders met and learned the necessity for prompt decisions and immediate execution of orders so vital in actual combat.

They learned, too, the absolute necessity for night reconnaissance, to determine the strength and location of

the enemy. In desert terrain, moving units throw up clouds of dust. By use of various means, one type of vehicle can be made to throw up dust clouds resembling those usually associated with another type. This is one method of desert camouflage.

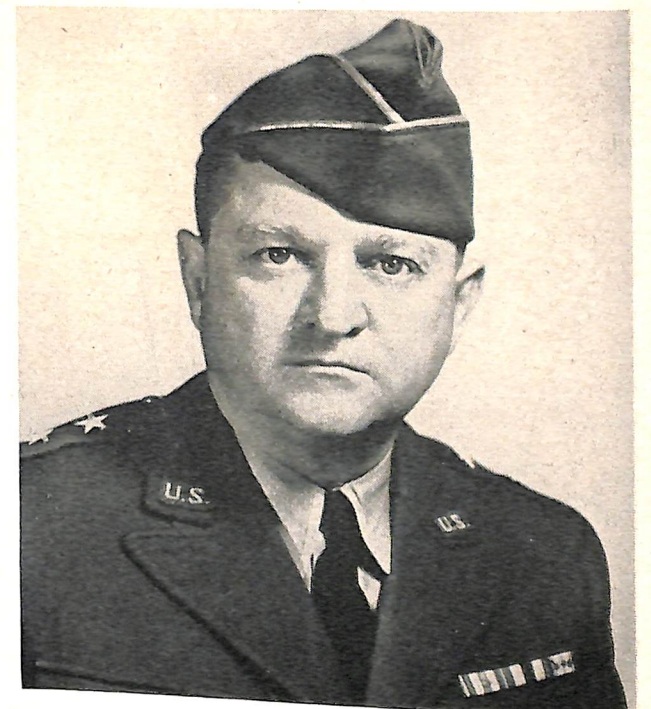
Commanders observing these dust clouds to their front found it essential to send up patrols at night for reconnaissance. These moved up in vehicles to points close to the

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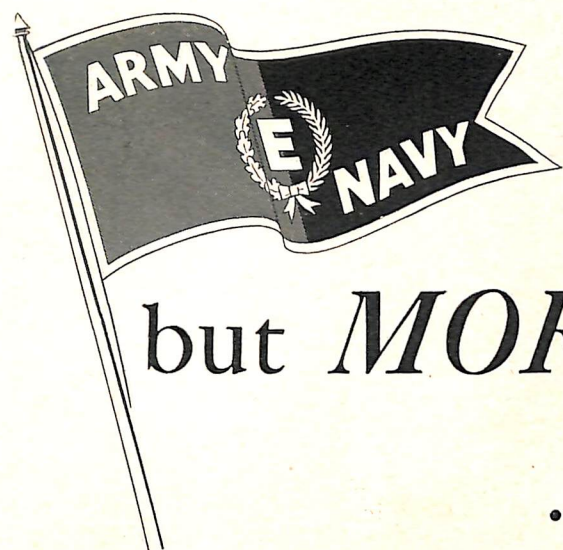


Army Signal Corps Photos

Maj. Gen. Alvan C. Gillem, jr., (right) goes over a map of part of the 12,000,000-acre area of the Army's Desert Training center. With him is his Chief of Staff, Col. John Pierce.



Maj. Gen. Walton H. Walker, who assumed command of the Desert Training Center in November.



It means *MUCH* to us
but *MORE* to our Stealthy Patrols
... *on their hazardous missions*



HONORS won either on the battlefield, in public life or on the production line are but a stimulant to greater effort and higher standards. Management, men and machines must team together as never before to achieve overwhelming victory.

The coveted Army and Navy "E", which has been awarded to you men at the machines, in the tool rooms, on the assembly lines and in every department of our plants, is the Armed Services' way of saying "Well done". The Board of Directors and the management of Auto-Ordnance Corporation join heartily with the Armed Services in congratulating you on a successful effort.

But this must be only a beginning. We must come through with **more** and **more** and **MORE** . . . and together we will.

Your splendid spirit and skill moved the "Tommy" Guns from the factory front to the fighting fronts, where they belong. You got them there not by hundreds but by hundreds of thousands . . . not tomorrow but yesterday . . . got them there when they were needed.

And the Nazis and Japs have felt their sting!

The men at Dunkirk and Tobruk . . . in Greece and Crete . . . from Norway to Singapore . . . and our soldiers in their fox holes on Pacific islands have told you so.

Your own American hearts and hard-working hands will tell you best how badly they are needed now and how well you can do the job of turning them out.

Make the "Tommy" Gun a symbol of victory . . . and a way to achieve it.

AUTO-ORDNANCE CORPORATION

Manufacturers of the Thompson Submachine Gun . . . "Tommy" Gun

BRIDGEPORT



CONNECTICUT

Our Merchant Marine and the War

by

Frank J. Taylor

President, American Merchant Marine Institute, Inc.

FOR many centuries control of the seas has been a large deciding factor in great wars. In the history of our own country this has been especially true. Beginning with our fight for independence and in the conflicts that were to follow, our merchant marine has many times turned the scales in our favor. Today, in this total world-wide conflict, the importance of merchant shipping stands out clearly again in the maintaining of continuous supply lines and transporting munitions and men in vast quantities to the far-flung fronts of the universe.

The nation that can obtain and maintain supremacy of the seas will win the war. Notwithstanding that air power has supplanted the superdreadnoughts in sea battles; that now we find airplane carriers replacing in importance the Navy's capital ships, our Navy remains our first line of defense and can and will bring to us a victorious decision in this war.

Every vessel flying the American flag whether it be dry cargo, tanker or collier vessel forms an integral part of the armed forces. Merchant ships serve as auxiliaries to the Army and Navy. They serve as supply ships to the naval fleet and military transports to the Army. In the establishment and maintenance of the naval bases, those important outposts that add most definitely to the security of our country, are the job of merchant vessels. In fact, whereas our American merchant marine has often been referred to as our second line of defense, the true place in the war effort of the shipping industry is right alongside of our armed forces.

Consider events to date. We are aware of the torpedoing of hundreds of our merchant ships since our entrance into the war. Many brave men who man the ships of our merchant fleet have given their lives, while others have undergone great hardships due to the sinking of the vessels on which they served. Their heroic deeds in line of duty and ser-

vice to their country are constantly being brought to the attention of all of us.

As each day passes the importance of the American merchant marine to the Army, Navy and the all-out effort becomes increasingly obvious. The ultimate success that will be ours at the end of the war cannot be achieved without the continued operation of American



shipping. Today our ships are to be found all over the entire globe. Converted merchant vessels not long ago transported an army to distant Australia. Supplies and reinforcements must be maintained to that continent. Long voyages to Africa and the Red Sea with munitions, food, tanks and planes must be carried on. The routes to the Russian front are beset with constant perils. Still war supplies must and are going forward unhaltingly.

The movement of American vessels is not confined to the shipment of military equipment and personnel, however. Daily going forth to the four corners of the earth are supplies and products of our country to our allies in this fight for the liberation of mankind. To the south of our country strategic war materials must be brought to us for conversion into the tools of war for the protection of the Western Hemisphere. The

success of the United States and the other United Nations can only be achieved with the continued and uninterrupted flow of the materials vital to our collective efforts. There can be no cessation under our lend-lease program and to the necessary aid to those countries with which we share the job ahead of us.

This job, this war, is all embracing in scope. Our lives, our homes and families are dependent upon its outcome. Ships, the common carriers of the essentials of war, are the key to that outcome. Their job cannot be overestimated. The great distances at which the battles are being fought, the problems involved in maintaining connections to those fronts clearly show that it is a war of transportation. And the problems involved can only be solved by an adequate merchant fleet to successfully accomplish the task before us.

Our country now has underway a ship construction program the like of which is unparalleled in its history. Great credit is due to those government officials under which this program is going forward. Credit is due too to the American lines and the Maritime Commission that had, prior to the war and, as a matter of fact, as far back as 1937, laid the groundwork that made the present program possible.



←
Convoy in South Pacific. Sailing with their sterns to the rising sun, ships of an American convoy set out for the Southwest Pacific.

U. S. Navy Photo



U. S. Navy Photo

Fitting out U. S. Merchant Ships for war duties.



Fighting Power *comes from* **WORKING Power**

The patriotism of a great corporation can be as real and sincere as that of the most patriotic American citizen. ★

Sears, Roebuck and Co. cannot literally carry a gun . . . but its many important sources of supply can make bullets and bomb racks, planes and tank communication equipment, armor plate and a host of other vital war necessities. ★

It can sacrifice the profits from the production of peace-time commodities for the production of war materials. ★

It can open its corporate heart and give management, manpower, money, machines and skilled personnel to the manufacture of anything and everything needed by the armed forces. ★

It can, through its many sources, give the *working power that produces fighting power* ★

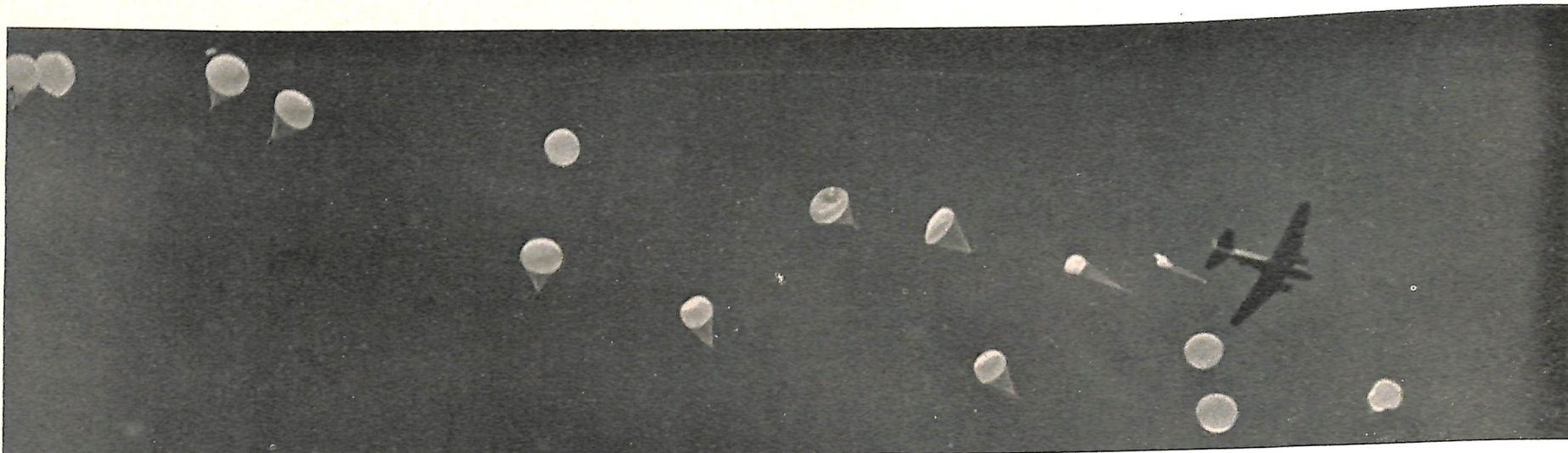
. . . As in its big David Bradley Farm Implement Factory, and others. ★

These things Sears has done and will continue to do. Not in the spirit of sacrifice but in the spirit of patriotism . . . the regard of an American institution for the American way of life. ★

"Produce for Victory" is more than a slogan . . . it is a creed . . . in the many factories which for years have supplied Sears, Roebuck and Co. with the merchandise we sell. ★

"Sears business as usual" can wait until the war is won. ★

★ ★ ★ ★ ★ ★ ★ ★
Sears
SEARS, ROEBUCK AND CO.



The Airborne Command

by

Brigadier General Elbridge G. Chapman, U. S. A.

Commanding, The Airborne Command

THE mass employment by the Germans of parachute and air-landed units has provided one of the major surprises in the current war and has led to such development of these units as to constitute a new weapon of increasing importance.

The Airborne Command at Fort Bragg, North Carolina, is charged under the Commanding General, Army Ground Forces, with sharpening the edges of this weapon and with developing a technique which will make its employment most effective.

The Airborne Command is widespread geographically, and consists of the Headquarters at Fort Bragg, the Parachute School at Fort Benning, parachute brigades and regiments not assigned to airborne divisions, and of numerous parachute and glider field artillery and antiaircraft units. The Command is responsible for the training of all airborne divisions, and for training standard infantry divisions in the use of transport aircraft. Additional functions include the development of airborne equipment and materiel, and the development of supply by air utilizing parachutes, gliders and aircraft.

Closely allied to the Airborne Command is the Troop Carrier Command, under the Commanding General, Army Air Forces, which furnishes the transport airplane and glider units for all airborne troops. Glider stations are operated throughout the country by the Troop Carrier Command, and set aside at each of these are facilities and training aids for the use of airborne units sent there by the Airborne Command for that phase of their training.

It is true that airborne units are organized and equipped for special operations, and that parachute elements consist of volunteers, but the fact is stressed that the parachute, glider and airplane are but different means to place the soldier quickly near his objective. Upon landing, the action is that of other ground units, modified by the use of special equipment and weapons, and characterized by a reduction in motor transport and the necessity for supply by air. The airborne soldier should possess military skill of a high order and, likewise, his effective employment demands aggressive, intelligent leadership in combat.

The landings of airborne troops will be made usually in enemy territory and the term "shock troops" is not inappropriate, but the idea is far from correct that these are in any sense either "Commandos" or "sacrifice units."

The employment of airborne troops presupposes a strong superiority in the air, a continuing support by fighter aircraft, and employment in mass and in conjunction with other major elements of the ground forces. The principle is accepted that an airborne operation would be too expensive to permit failure, and the operation accordingly is favored with more than the usual number of factors required to insure success.

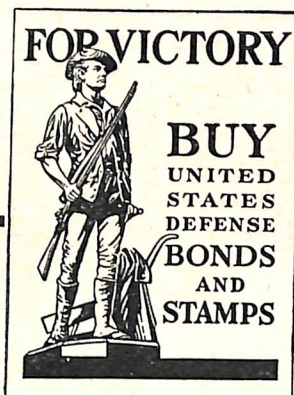


Brig. Gen. E. G. Chapman



Utmost care goes into the manufacture of parachutes for our troops. This scene in an eastern plant shows parachutes being inspected after test drops from airplanes.

OWI Photo



December 8, 1941 the President quoted:

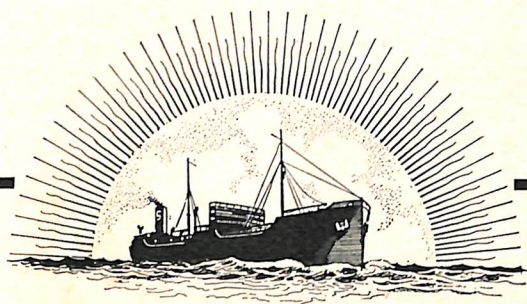
"Yesterday, December 7, 1941---a date which will live in infamy---the United States of America was suddenly and deliberately attacked by naval and air forces of the Empire of Japan The attack yesterday on the Hawaiian Islands has caused severe damage to American naval and military forces. Very many American lives have been lost No matter how long it may take us to overcome this premeditated invasion, the American people in their righteous might will win through to absolute victory."



***Each ship adds to our might and we
shall build more and more ships for that
VICTORY.***



**SUN SHIPBUILDING & DRY DOCK CO.
CHESTER, PA.**



The Operation of the Judge Advocate General's Department

by

Major General Myron C. Cramer

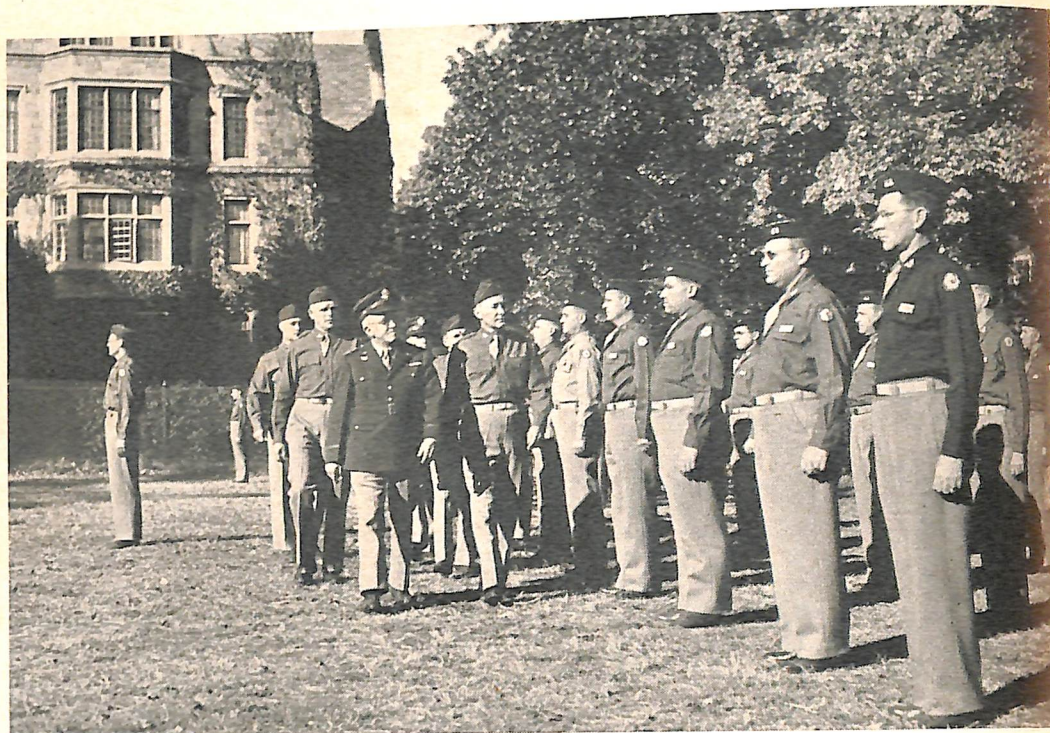
The Judge Advocate General of the Army

THE primary purpose of the Judge Advocate General's Department is to furnish legal advice on military matters to the President and to the Secretary of War, the Under Secretary, the Assistant Secretaries, the Chief of Staff, and the commanding generals on whose staffs the officers of the department serve. A secondary, but important, purpose is to furnish legal advice to anybody in the Army who needs such advice in the performance of his official duties.

The question may be asked:—why have lawyers in the Army? The Army is a fighting organization; what necessity is there for lawyers as a part of it?—The answer is that an army, if it is to be an army and not a mob, must have discipline and must be organized and administered in an orderly manner with due regard for the rights of every person in it. In order to have discipline, which is indispensable and of every person with whom it deals. In order to have discipline, which is indispensable.

(Continued on page 159)

Maj. Gen. Myron C. Cramer, The Judge Advocate General, and Col. E. H. Young, J.A.G.D., Commandant of The Judge Advocate General's School and his staff, reviewing student officers. The added facilities provided the school by its new quarters in the seven million dollar Law Quadrangle of the University of Michigan has permitted an extensive broadening of the course. Now, in addition to technical training in the field of Military Law, daily infantry drill and instruction in weapons, map reading, chemical warfare, administration, and other purely military subjects form an important part of the curriculum.



War Activities of the Office of the Judge Advocate General of the Navy

by

Rear Admiral W. B. Woodson

Judge Advocate General of the Navy

THE Judge Advocate General of the Navy is the chief legal officer of the Navy Department. His functions in detail are prescribed by the Navy Regulations which are approved by the President. The activities of the Navy throughout the world include matters of every nature; consequently, the problems raised in its operation encompass practically every branch of law.

Within the office, the cognizance is separated into four divisions:

- I The Administration of Justice.
- II Administrative, Admiralty, International Law, Legislative Matters.
- III Contracts, Performance Bonds and Miscellaneous Claims.
- IV Patents, Trade Marks and Copyrights.

Specialists in all branches of law affecting the Navy are assigned to these respective divisions. The peacetime legal organization has been augmented by the addition of carefully selected lawyers with particular qualifica-



tions and specialized knowledge. These have been selected from all over the country and have been inducted into the Legal Naval Reserve and their special experience made available for wartime legal requirements.

The activities of the Navy are closely circumscribed and controlled by laws, regulations and precedents. The first impact of World War II came in the summer of 1940 with the passage of statutes providing for the so-called 11% and 70% building program applying particularly to ships. At about the same time the aviation program was also stepped up enormously. Shortly thereafter came the entirely new conception of Lend-Lease. What had been in peacetime simply provisions for the control of the expenditures of the Navy Department, now often became fetters in the accomplishment of the naval expansion program. As these regulatory measures developed into hampering devices, in

(Continued on page 153)

Time can be an Enemy -or an Ally

When the whole story is told, America's citizens will be proud of the many ways their war leaders have made an *ally* of time.

In our own contribution to the end that time will be an ally of the United Nations, we are determined that the flow of Vultee trainers, bombers and fighters will be accelerated.

And this we reaffirm: The necessity for building planes will not stop with the cessation of hostilities.

In a world where aviation has cancelled the protection of distances, our Air Forces must become stronger.

In a world where trade-routes will be *air*-routes, American aviation will have fresh opportunities to display its might.

In the unfolding of the patterns of this Air Age, we intend the name Vultee will be as significant in re-shaping World Geography as it has been in re-shaping World Combat.

VULTEE

VULTEE AIRCRAFT, INC. • VULTEE FIELD, CALIFORNIA

Builders of Trainers, Dive Bombers and Fighters

Member, Aircraft War Production Council, Inc.



The War Effort of the Infantry School

by

Major General Leven C. Allen, U. S. A.

Commandant, The Infantry School

THE vast expansion of the army incident to the transition from a peace to a war footing probably has had as profound an effect upon The Infantry School at Fort Benning as upon any other peace time army activity.

Figures which, until 1940, enabled this school to proclaim itself the largest of its kind in the world, have, in two short years been multiplied by hundreds. Its instructional staff numbers more officers than were graduated during the academic year ending in 1941. The volume of training literature which now issues from its army field printing plant is probably greater than the volume of all military publications issued throughout the country prior to 1940.

The necessity for and importance of the vast expansion of The Infantry School stems from the fact that the school may properly be termed the fountain head of infantry training. It works directly under the Replacement and School Command, which is in turn, an agency of the Army Ground Forces.

The school performs its training mission by three major methods: First, by providing trained officer graduates, who then are assigned to units in the field and pass on to those units the training received; second, by the timely preparation and distribution to infantry units and training centers of up-to-date instructional pamphlets, films, and other training material; and, third, by preparation of new and revision of old training manuals.

To meet the increased demand for officers it became necessary for The Infantry School to curtail sharply the length of its courses and to increase the number of classes. The required increase in the number of classes for candidates and junior officers was so great that the production of these officers had to be effected by the assembly line method. At present approximately one officer candidate class is being received and one graduated every day except Sunday.

The required curtailment of time available made it necessary to make certain basic decisions. The most important and far reaching of these decisions was to concentrate upon the mass production of good infantry combat platoon leaders. If these are good, it was felt, their specialized training made necessary by assignment to some special type of infantry,

such as armored, motorized, airborne or mountain infantry, would be a simple matter. It was further felt that these special types of infantry units would be in a better position than the school to give this additional training since they would have a better understanding of the exact requirements.



Officer candidates practicing the art of thrusting bayonets at the Ft. Benning Infantry Officers' Candidate School. Below: General Allen, Commandant of the Infantry School.

Army Signal Corps Photos



In order to keep The Infantry School abreast of modern trends in combat, certain officers are designated to comb reports from foreign theaters of war, and reports and digests issued by the Military Intelligence Service, for indications of new methods and weapons and to evaluate their effect upon infantry training. As a result of these studies, the course of instruction at the school is con-

tinually being modified to keep it abreast of present-day combat methods.

The second method employed by the school to assist in the training of infantry may be described as an attempt to do the desk training for unit commanders in the field. One section of the school devotes its time exclu-

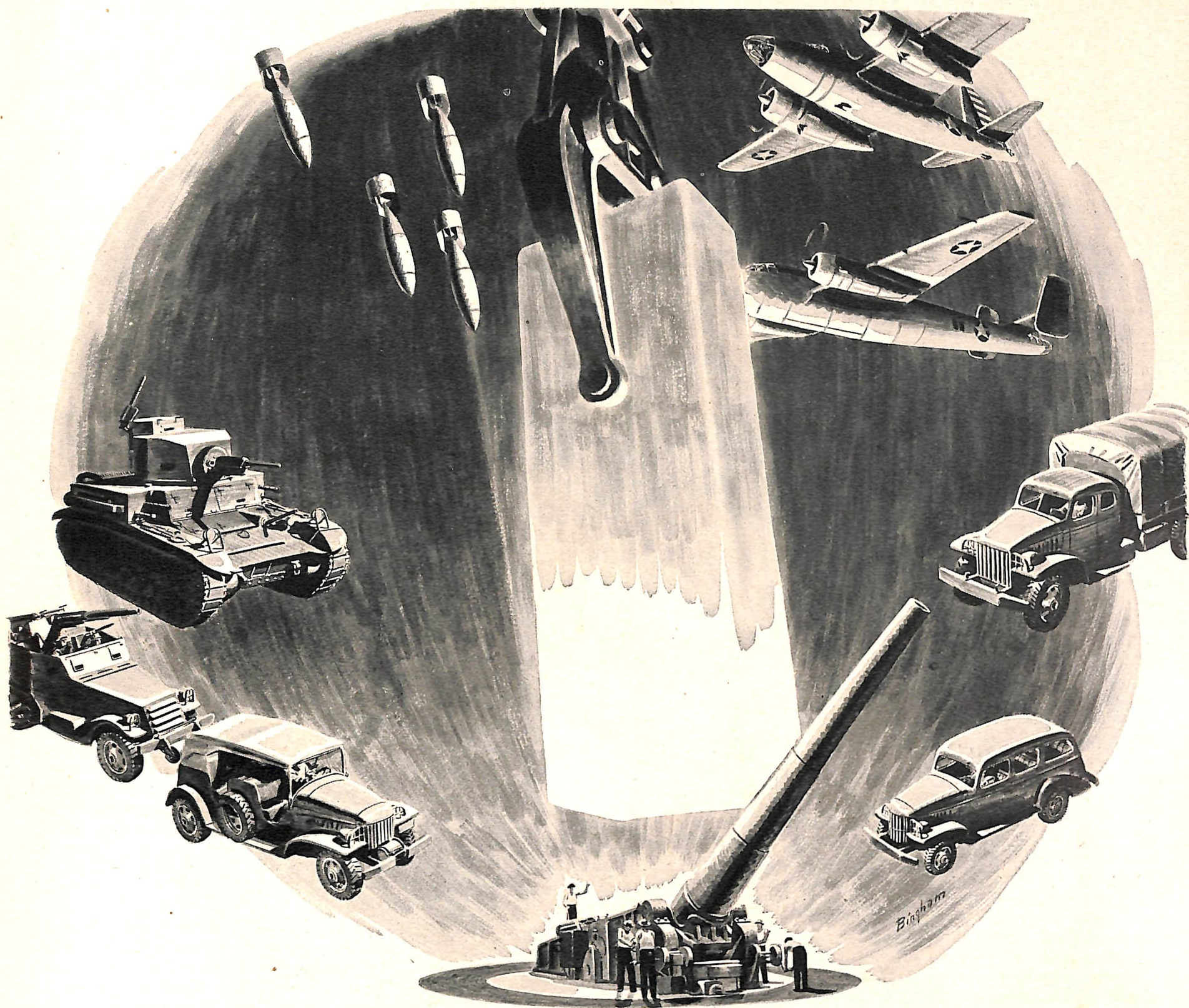
sively to this type of work. It analyzes various training subjects and issues schedules considered suitable to effect efficient training in these various subjects. It issues training bulletins designed to place in the hands of units in the field as quickly as possible the latest thought on infantry methods, and changes in training methods made necessary by changes in organization or equip-

ment. The school is now distributing approximately two million pamphlets each month totaling about fifty million pages of training literature. It has prepared during the past year twenty-four training films, thirty-two film strips, and a number of training charts.

During the past 18 months The Infantry School has prepared a complete new series of Field Manuals dealing with the organization, tactics, and technique of Infantry units. All of these have been approved and distributed to the Service with the exception of one which is practically ready for distribution. By timely change and revision these manuals have been kept abreast of latest changes in organization and equipment.

Simultaneously with the great expansion of its training in general infantry subjects, The Infantry School has greatly increased its annual production of trained specialists for infantry units, including communication and automotive experts, both commissioned and enlisted. A course has also been added in the technique and tactics of the Infantry Cannon Company.

The mushroom growth of the school's output of graduates has of course been accompanied by a similar expansion in the demand for housing facilities, utilities, and training areas. Additional land purchases have, during the past year, approximately doubled the size of the Fort Benning Reservation. Housing capacity has been increased in two years by about 200 per cent, and other facilities have grown correspondingly.



National Steel forges the sinews of War

National Steel Corporation's program to meet war demands for steel began more than a year before Pearl Harbor. It has extended at record-breaking speed into every department of every plant. As a result, iron and steel capacity of National Steel Corporation has been substantially increased.

Steel for guns, for tanks, for shells, for airplanes, for ships, for bombs, for all the other weapons of War—and Victory—is being produced by the operating division of National Steel at greatly accelerated tempo. More steel—better steel—than ever before. Steel that meets the strictest quality requirements laid

down for vital war material. Steel that keeps our war industries operating at peak capacities. Steel that finds its way, quickly, into materials and munitions to insure a decisive Victory and a sure preservation of our own American way of life.



National Steel Corporation

Owning and Operating:

Weirton Steel Company—Great Lakes Steel Corporation
The Hanna Furnace Corporation

The Shore Support for the Fleet

by

Rear Admiral Ben Moreell, (CEC), U. S. N.

Chief of Civil Engineers and Chief of the Bureau of Yards and Docks, U. S. Navy

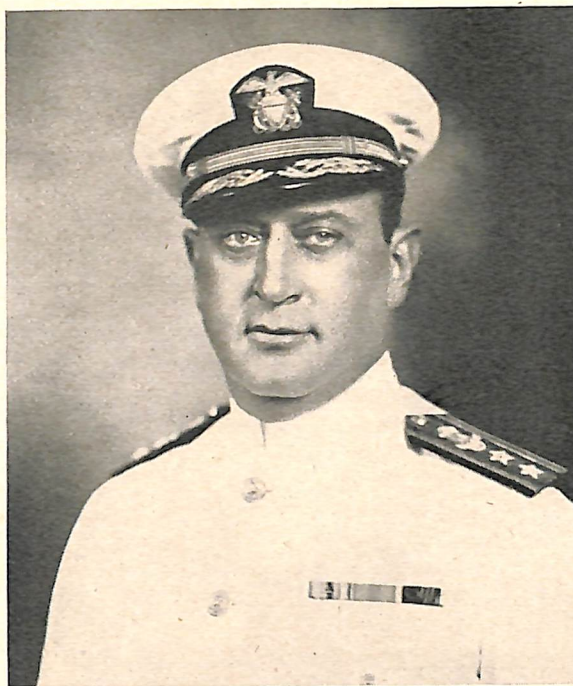
AS far back as 1800, shortly after the beginning of the Navy Department, the need for a shore establishment to build and support the fleet became apparent and government Navy Yards were built at Portsmouth, N. H.; Boston, Mass.; New York, N. Y.; Philadelphia, Pa.; and Gosport (now Norfolk), Va. These yards still remain on the original sites with the exception of Philadelphia, which was moved to League Island in 1868.

In 1826 work was begun on the design and construction of graving dry docks at Portsmouth, Boston, New York, and Norfolk. Eminent civil engineers were called in for all this work, and after the reorganization of the Navy Department in 1842 and the establishment of the bureaus, including the Bureau of Yards and Docks, civil engineers were employed in a civilian status in increasing numbers at the navy yards, stations, and the Department. It became increasingly apparent, however, that the civil engineers responsible for the design and construction of the shore establishment could not function at best efficiency and with proper mobility in a military setup unless they were commissioned officers. Consequently, they were given rank, and the Civil Engineer Corps had its beginning in 1881.

It is the function and responsibility of the Civil Engineer Corps of the Navy, through the medium of the Bureau of Yards and Docks of the Navy Department and its field organization, to assist all bureaus and offices of the Navy Department in the development planning and to administer directly the design, construction, and maintenance of such shore establishments.

The development of our national emergency prior to the declaration of the war initiated an unprecedented expansion of the Naval shore establishment and has resulted in a very great increase in the size of the Civil En-

gineer Corps. During the previous World War the Corps, augmented by Reserve and temporary officers, reached a total of 209 commissioned officers at the signing of the armistice. This number, compared to the present strength to date of 2,800 officers, is an excellent indication of the magnitude of the present Naval shore establishment construc-



tion program as compared to the one of 1917 and 1918.

The area of effective operation of any combat arm of the Navy depends to a large extent upon the number of adequate and strategically-located bases from which that arm can strike. The first impetus of the present unprecedented shore building program of the Navy was given by the report of the Hepburn Board to Congress on December 27, 1938. This report emphasized the necessity for

promptly undertaking the establishment of air bases in the Pacific, in Alaska, and in the Caribbean, as well as within the continental limits of the United States. Congressional authorization late in April, 1939, paved the way for the commencement of work in the summer of the same year. The collapse of France and the threat of invasion to Great Britain emphasized the need of rehabilitating and enlarging the fleet bases on the Atlantic seaboard. In the summer of 1940 a heavy expansion program was accordingly begun at all of the existing navy yards and stations along the Atlantic coast. Simultaneously work was accelerated at all yards on the west coast, in the Canal Zone, and at Pearl Harbor.

To this program was added in 1941 the development of the bases in the British leased sites in Newfoundland, Bermuda, Great Exuma, Antigua, St. Lucia, Jamaica, Trinidad and British Guiana, together with the expansion of the Caribbean projects to include a fleet operating base at Vieques, Puerto Rico. In the continental United States new Marine Corps training bases were begun in North Carolina and Santa Margarita, Calif., in addition to rapid expansion at the older Marine Corps barracks at Parris Island, S. C., Quantico, Va., and San Diego, Calif. Plans for construction of lighter-than-air craft required expansion at Lakehurst, N. J., new bases at South Weymouth, Mass., Elizabeth City, N. C., Port Arthur, Tex., Galveston, Tex., Tillamook, Ore., Santa Ana, Calif., Richmond, Fla., and Houma, La., and the return of the base at Sunnyvale, Calif., to the Navy.

The Naval Aviation program began with provision for fundamental training. Throughout the country from coast to coast a series of primary training fields known as Naval

(Continued on page 137)



Constructing naval works in war is part of the gigantic task of officers of the Civil Engineer Corps. This officer and his advisers are up to their waists planning the runway ramps for sea-planes. Coral rock and sea urchins make the underfooting tough going.

Navy Seabees lay down steel mats which later are filled in with coral rock to make a smooth surface. The tents are hidden from the sight of enemy planes by towering coconut palms flanking the new street the Seabees are building in a Southwest Pacific Naval Base.

U. S. Navy Photos



The Army Engineers and Global War

by
Major General Eugene Reybold,
Chief of Engineers

THE Army of the United States comprises a mighty team, each component of which contributes something of vital significance. The contribution of the Corps of Engineers is two-fold: to increase the mobility of our forces in the field; and, to further the fighting power of our forces by construction in the rear.

Like all other components of our great new Army, the Corps of Engineers has kept abreast of the times. It has met the challenge of such developments as the necessity for clearing minefields, for breaching fortifications, and for effecting the rapid crossing of rivers, by developing appropriate types of equipment, by establishing appropriate types of organization, by formulating appropriate doctrine, and by providing for efficient training of troop units.

On the construction front, the vast program for housing our new Army and for providing the schools and factories and other facilities involved in the total war effort already has passed the hump. In this great program, the Corps has utilized to fullest extent America's



matchless construction industry. A few random figures give an idea of what this team of

Army Engineers, American contractors and civilian labor have done.

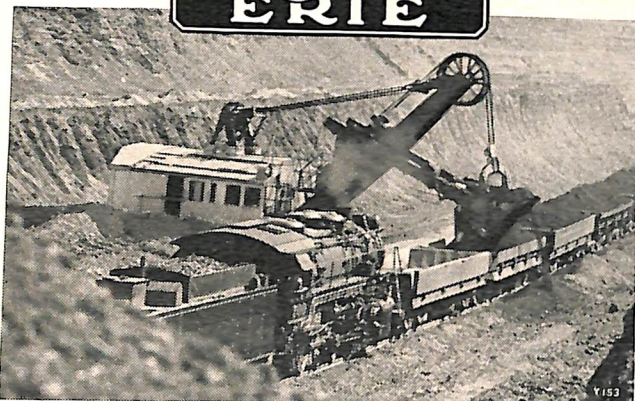
They have built enough airfield runways alone to make a 4-lane highway from Boston, Massachusetts to Denver, Colorado. They have installed railroad trackage equivalent to the railroad mileage between New York City and St. Louis, Missouri. They have constructed a pumping capacity for the Army's water system large enough to supply all the requirements of the combined populations of Iowa and Kansas. They have built roadways with a surface area greater than that of three 20-foot highways paralleling the existing usually travelled route between New York City and San Francisco, California.

Furthermore, in the construction of all the facilities erected in the war construction program, immense savings in critical materials have been effected through simplification and standardization of design and the use of substitutes for aluminum, copper, steel and many other products—including even wood.

The successful accomplishment of the Engi-

(Continued on page 153)

**BUCYRUS
ERIE**



DIGGING THE FOUNDATIONS FOR VICTORY

The entire production of Bucyrus-Erie's four plants is going into vital war work. Ordnance materiel, crawler and wheel-mounted shovels and cranes, and a variety of tractor equipment are going direct to Army and Navy. Lend-lease is moving Bucyrus-Eries to many of the present and future fighting fronts. On the home front, Bucyrus-Eries are mining iron ore, copper, nickel, aluminum, coal, and other sinews of war. They are working 24 hours a day on shipyards, airports, ordnance plants, and cantonments.

While we are naturally proud of the part our equipment is playing in the war effort, we are also deeply aware of our responsibility to build it as fast as we can and as well as we can.

Bucyrus-Erie
SOUTH MILWAUKEE, WISCONSIN

1942
AMERICA'S MOBILIZATION YEAR

1942 will be remembered as the year America mobilized its great resources and economy from a defensive position to full-scale readiness for strong offense.

Throughout the nation during 1942, GRAYBAR has worked unceasingly toward the speedy mobilization and distribution of electrical supplies — supplies vitally necessary to war industry and the Armed Services. GRAYBAR is proud of whatever small part it has played in bringing Victory closer.

Graybar

IN OVER 80 PRINCIPAL CITIES

Executive Offices: GRAYBAR BUILDING, NEW YORK, N. Y.



War-Time Tasks of the U. S. Public Health Service

by

Thomas Parran, M.D.,

Surgeon General, U. S. Public Health Service

VIRTUALLY the entire staff of the Public Health Service is now engaged in activities directly related to the war. In addition, with emergency appropriations from Congress, the Service has recruited and trained more than 700 physicians, nurses, engineers, and other technical personnel for duty in war areas. These people have been loaned for the duration of the war to State health departments which in turn assign them to particular communities. Their duties include: setting up new local health services for the control of communicable diseases, sanitation of the environment, and provision of maternal and child health services.

The regular staff of the Public Health Service has also been augmented and is constantly in demand for emergency duty. Supplementing the work of the Marine Hospitals and relief stations, nearly 100 medical officers have been assigned to the War Shipping Administration to examine candidates for training in the U. S. Maritime Service; to provide medical care for trainees at the Maritime Training Stations; and to provide similar service at the convalescent homes and rest camps for seamen whose ships have been bombed or torpedoed. The U. S. Coast Guard has grown by leaps and bounds and has needed many more doctors for boats on convoy duty, for recruiting units and training stations.

The Medical Commission to China, appointed by the Public Health Service a year ago to supervise malaria control, escaped the Japanese advance along the Burma Road. These 15 doctors, entomologists, and engineers are now on duty with the U. S. Army in India, where our troops must be protected against malaria.

War has emphasized the importance of increasing our efforts against malaria, tuberculosis and venereal disease among the civilian population.

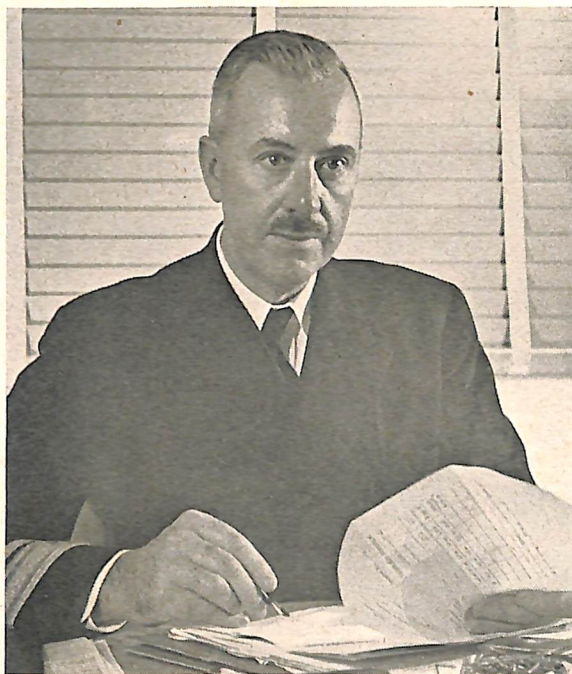
Malaria is one of the most widespread and consuming of all human diseases. It saps the strength of an estimated 800,000,000 people in the world. There are approximately 2,000,000 people affected in this country each year, mainly in Southern States.

Engineering surveys made in April and May 1941 revealed the need for controlling malaria and pest mosquitoes in 155 military, naval and industrial areas. The Public Health Service has initiated practical control measures in critical areas in 17 Southern States.

Although the mortality from all forms of tuberculosis has dropped sharply, from 194 per 100,000 population in 1900 to 46 in 1940, the knowledge that the pressures of war have



The Public Health Service considers it advisable, insofar as possible, to eliminate flight personnel as a quarantine hazard, as they generally travel great distances and enter many ports during a short period. A high degree of immunity is maintained against yellow fever, smallpox, and typhoid and should it seem indicated, there may be an attempt against cholera and typhus. In this photo, a Public Health Service officer is injecting the men who fly the Caribbean and to South America. Below: Surgeon General Parran.



always resulted in an upswing of tuberculosis has resulted in the intensification of activities of the Public Health Service to control this illness.

The use of portable 35 mm. photofluorographic units has greatly facilitated the technique of swiftly examining large numbers of

individuals so that tuberculosis may be detected at an early stage where it may be arrested most easily. Mobile units are being made available for case-finding among workers and their families in war industries. Present plans envisage examination of all industrial workers, with an annual follow-up in certain groups.

In every one of our 48 States there is a well established program of venereal disease control, providing free diagnosis and treatment, and supplying physicians with free drugs. During the fiscal year 1942, 3,363 venereal disease clinics were cooperating with the Federal program. More than 17 million serologic tests for syphilis were made, and an average of 404,885 patients per month received treatment for syphilis. Approximately 10,500,000 doses of anti-syphilis drugs were distributed.

National control of gonorrhea by means of treatment with the new "sulfa" drugs is rapidly advancing. In 1942, over a million and a quarter laboratory tests for gonorrhea were made and 12 million tablets of sulfa drugs were distributed by co-operating agencies.

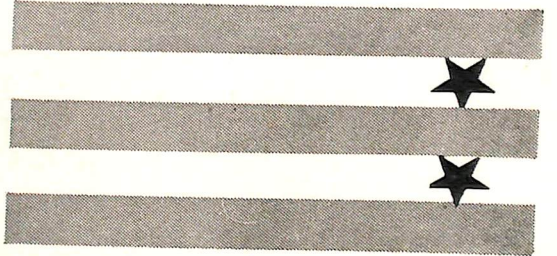
For the first time in military history, a blood test for syphilis was given to Army candidates under our Selective Service laws. A Federal appropriation of \$12,500,000 has been provided for venereal disease control for the current year, with emphasis on war areas and the treatment of men rejected because of venereal infection.

To meet the production quotas, every war worker must be kept at top efficiency. The health task is largely one of extending services, training additional personnel, and using foresight to meet the problems created by the war, such as the use of new chemical substances, speeding up production, and the influx of many new workers, women as well as younger and older men. To give active assistance to modern industry, there is available in the Federal Service and in the 45 State and local industrial hygiene units an organization of more than 500 trained professional workers. Through inspection of plants, medical and engineering consultation, and laboratory services an effective program for the health protection of workers in individual plants is available.

The Public Health Service has also completed a survey of 65 government-owned industrial plants certified by the War Department for thorough investigation. These in-

(Continued on page 159)

America's Oil and American Victory!



You have read a great deal about the importance of oil in this war . . . especially about oil that is or isn't in the hands of the enemy.

We offer here a short reminder to the American people of the mighty importance of their own oil . . . and of their matchless ability to use it. For the most important thing about America's oil is not just that we have more petroleum than anyone else, with approximately 60% of the world's known supply.

Even more important is what we know how to do with it . . . Those processes we learned long ago, in an endless peacetime hunt for better ways to get better products to your corner filling station.

Because of that work we have 100-Octane gasoline, a price-less edge in air combat, and a fuel which no other country can make as much of as we can. Because of that mastery of petroleum science, we have special oils as dependable on Russia's coldest steppe as over



Libya's most torrid dunes or the Solomons' sweltering jungles. And special hydraulic oils for operating controls in planes and ships and guns down to temperatures where the ordinary product would merely freeze and lock the equipment into uselessness. Because of that work, we are now on the way to synthetic rubber . . . first for the armed forces and later on for everyone . . . that will in several ways surpass the real thing. Because of that work, we now have Tolnol, basis of TNT, made synthetically from petroleum so that our national capacity for making TNT is more than double what it was. We do not now list these accomplishments here to promote the sale of any products to the general public. What we do want is to point out here that, in peace or war, for no other nation on earth has oil been made so superbly the servant of man.

STANDARD OIL DEVELOPMENT COMPANY * BAYWAY, NEW JERSEY

OPERATING THE



RESEARCH LABORATORIES

We Understand War

by

Eric A. Johnston

President, Chamber of Commerce of the United States

“WE are at war today with countries whose economy has long since been geared to war. To wage this war most effectively, we must so gear our entire economy as to get maximum war production. That must be accomplished at once, so as to win the war in the shortest possible time, in order to save lives, avoid a long grueling war effort and to prevent unnecessary waste of resources.”

Those words are quoted from a resolution adopted by the Board of Directors of the United States Chamber of Commerce at a special war session held immediately after the attack on Pearl Harbor. A year has passed since the National Chamber's Board of Directors took the stand that the nation's entire economy had to be geared to war. American business, as represented in the United States Chamber of Commerce, stands unswervingly behind that resolution today.

For—we understand war.

The fact that we do comprehend war in its full and perilous meaning was recognized by no less an observer than Field Marshall Von Hindenburg after the first World War. The German military leader gave as one of the decisive reasons for an Allied victory our understanding of how to make war. You will recall these words from his oft-quoted memoirs:

“America's brilliant, if pitiless, war industry had entered the service of patriotism and had not failed it. Under the compulsion of military necessity a ruthless autocracy was at work, and rightly, even in this land at the portals of which the Statue of Liberty flashes its blinding light across the seas. *They understood war.*”

Thus the words of a German war lord who realized only too well, but too late for his purposes, the terrible power of American industry and the undaunted courage of American fighting men.

But this vast global conflict, waged on most of the world's continents and many seas, is a different kind of war in many senses. Do we comprehend the scope and the implications of war in this century of science; the power and cunning of an enemy who asks no quarter and gives none; the tremendous measure of blood, toil and treasure necessary to compound victory for freedom's forces?

In speaking for the men of business and industry, I can say that we do understand this war, even more profoundly than we understood war twenty-five years ago.

We understand that all signs point to a drawn-out conflict; that the enemy today has hardly started on the path to defeat, even if he has started at all.

We understand the great magnitude of this war, which thunders in the skies and on the sea and land of Europe, Asia and Africa.

We understand that the cost of this war in terms of money is so enormous as to be beyond the grasp of mentality—and also that vast as will be the money cost, victory cannot be bought with money alone, but must be paid for with a price-less currency, the lives of young American manhood.

We understand that many of the principles by and for which our nation lives must be temporarily modified or even suspended; that our economy and production must be geared to meet the challenge of atavistic enemies long and totally organized for war.

We understand that we began war actually



as amateurs and we are fighting professionals. We will lose our amateur standing and achieve superiority over our opponents only through the costly and bloody experience of fighting them—and fighting them aggressively and savagely.

From a military standpoint, the Japs have received intensive training in the Chinese theater of war; the Germans on the battlefields of Europe. Theirs has been the grim lesson which can only be learned through the teachings of trial and error.

From the production standpoint, the technology and energy of our enemies for many years has been concentrated almost wholly on the development and manufacture of armament.

We of American business and industry, guided by the dictates of a peace-loving people, were almost completely organized to meet civilian requirements. Yet, blessed with our resources and ingenuity, we turned overnight to the manufacture of the intricate machines of war, the planes, ships, tanks and guns of today's fast-moving warfare. That our efforts

in this respect have met with phenomenal success is striking tribute to American technicians, workers and managers and dramatic proof of the industrial development attainable in a nation whose economy is established on a foundation of freedom.

We understand—and this we understand with acute awareness—we understand the need for total unity to fight a total war. Any dispute, any conflict among management and labor and government and agriculture acts as a brake on the drive to victory. No need to recall the tragic story of France, a great nation whose bitter internal antagonisms led to her swift and disastrous defeat.

Complete unity between all the groups in our national life can only be obtained when each and every group completely subordinates self-interest to national interest. The cooperation of those groups necessary to weld a staunch national unity must be predicated on belief by each party in the integrity and motives of the other. And the motive of all groups obviously should be to win this war in the shortest possible order.

We are not subordinating self-interest to the general national interest so long as any group exerts self-seeking pressure on Congress. The only pressure excusable in this time of extreme crisis is pressure for the general welfare of the United States and the people of the United States. To this principle, the United States Chamber of Commerce is wholeheartedly dedicated.

The United States Chamber of Commerce is the national voice of business and industry in Washington. More than a million business men are represented in the National Chamber's membership. Seventeen hundred and fifty chambers of commerce and trade associations establish the policies of their national organization. Not only the great manufacturing concerns of the nation, but the merchant in your town, the machine shop operator who lives next door, your friend the baker—the business men who are the backbone of your community express themselves nationally through their organization in Washington, the United States Chamber of Commerce.

Yes, we understand war. Since Pearl Harbor and before, the National Chamber has been awake to the unprecedented danger confronting our democracy and our country. As president of the National Chamber, it is with profound pride that I can state that on no occasion since America's entrance into the war have we advocated any policy or recommended any measure designed especially to further the interests of business and industry. Not once have we asked for special privilege.

Within our nation-wide membership, we watched as manufacturers of civilian goods,

(Continued on page 160)

American energy will win!



Bombers, battleships, tanks, guns—
American energy is turning them out
at full speed. And Pepsi-Cola helps. It
provides quick food energy—helps sus-
tain morale and send millions back to
work, ready to do a better and faster job.

America's on the way--to Victory



THE DRINK WITH QUICK FOOD ENERGY

Field Artillery in the United States Army

by

Brigadier General Jesmond D. Balmer

Commandant, The Field Artillery School

THE American Field Artillery embodies the most modern concept of employment of mobile cannon. Field Artillery contributes to the action of a combat force through the devastating effect of its projectiles. It is capable of intervening over a zone of great width and depth, of shifting and concentrating its fire without changing position, and of moving with great speed from one area to another. Artillery thus constitutes a powerful reserve. It is the fastest, most flexible, and most effective source of concentrated fire power available to the force commander with which to influence the course of combat. Artillery projectiles are cheaper than the lives of our soldiers.

Field Artillery must be able to MARCH, COMMUNICATE, AND SHOOT. Since field pieces were first placed on wheels, these have been basic fundamentals. These fundamentals remain unchanged. American artillery now marches faster, communicates more quickly and efficiently, and shoots with greater accuracy, speed, and masses of fire power than ever before. It is a modern arm of a modern army.

The situation has changed since World War I. Then the artillery supported only slow-moving foot infantry and the somewhat more mobile cavalry; today, it must be able to handle a multitude of possible situations. Artillery is ready to support infantry: Infantry on foot, infantry riding in trucks, infantry in the jungle and in the mountains, infantry landing on a hostile shore, and paratroops dropping from the skies. To support this infantry the artillery is prepared to advance along roads, across country, through the jungles, over the mountains, across the water, and also drop from the skies. Artillery is ready to support the fast-moving armored forces. Such varied operations call for a ver-

satility of action to keep pace with the particular arm or unit supported. Our Field Artillery is training both to support rapid operations over broad fronts and to batter a slow, deliberate way through the most skillfully designed permanent fortifications the world has known.

To meet these increased responsibilities the Field Artillery is constantly improving its equipment, technique, and tactics.



To gain speed and mobility, motor vehicles and transport airplanes have been substituted for the horse. For special operations in mountainous terrain, the horse and mule have been retained as transport, but the great mass of American artillery is motorized and capable of great rapidity of movement. Self-propelled mounts, possessing all of the mobility of the armored tank, are being employed to carry the powerful artillery pieces into any theater in which the armored units advance.

To produce greater fire effect, the caliber of the close supporting light weapon has been increased by adoption of the 105-mm howitzer in the place of the 75-mm gun of World War I. Besides the additional blasting effect of the larger 105-mm howitzer shell, the artillery is able to occupy and shoot from positions and hit targets once denied to the flat trajectory of the 75-mm gun. This howitzer is a deadly and accurate antitank weapon and will be used by artillerymen for close defense of their positions.

To produce controlled, massed fires of large

units, a simple fire-direction technique has been developed. Though subject of use and experiment at the Field Artillery School for many years, this effective technique had its baptism of fire in the hands of the defenders of Bataan. The Japs testify to its effectiveness. The results of the massed fires of American artillery on that peninsula corroborate the faith which artillerymen in this country have felt in our adopted fire direction procedure.

The artilleryman still shoots from the hip when the situation or facilities demand such action. Consequently the individual training of the single gun crew, the platoon, and the battery are stressed.

Wars today are fluid. There are no longer the static, solid front lines to guard the artillery positions and other rear installations. Our artillery is preparing to fire effectively in any direction, front, rear, or flanks, on a moment's notice. Attack of artillery positions by enemy infiltrating infantry, fifth columnists, tanks and paratroops are possibilities against which precautions must be taken. Thus, the artilleryman must be trained in close combat, both with small arms and with his bare hands. The importance of the artilleryman as an individual fighting soldier has increased. Since the possibility of attack on the artillery position has become so strong, the artillery has been provided with new weapons to protect itself against enemy tanks and planes. The artilleryman carries a powerful shoulder weapon, a short, effective carbine, which has greatly enhanced his protective ability. The primary weapons of lighter calibers are within themselves effective anti-tank pieces; heavy machine guns and light antitank weapons seek to furnish the protection necessary to repel an attempted interruption of the artillery mission of support.

(Continued on page 160)



High up in the mountains a crew goes into action with a 155-mm gun.



A potent Field Artillery weapon is the 105-mm. howitzer shown here elevated for high angle fire. U. S. Army Photo

The Shore Support for the Fleet

(Continued from page 130)

Reserve Aviation Bases were established where aviation candidates are given their preliminary instruction and tests in actual flight. Such units have been established in the interior in Minnesota, Michigan, Illinois, Kansas, Missouri, Georgia, Washington, Tennessee, Oklahoma, Indiana, Iowa, and Texas, in addition to other sites along each coast. The basic and advanced aviation training stations include Pensacola, Fla., which has been greatly expanded; a new \$75,000,000 training station at Corpus Christi, Texas; and the Naval Air Station at Jacksonville, with the recently developed subsidiary stations at Banana River and Miami, Fla. Operating air bases have been strategically located at Quonset Point, R. I., at the greatly enlarged Naval Operating Base at Norfolk, Va., and at Alameda, Calif., Cherry Point, N. C., and Imperial Valley, Calif., with expansion of the existing bases at San Diego, Calif., Seattle, Wash., and other continental locations. In Alaska and the Hawaiian Islands, at the Atlantic bases ranging from Newfoundland to British Guiana, and in Puerto Rico and the Canal Zone, aviation facilities have been established or vastly expanded.

To serve the surface fleet and its auxiliaries an unprecedented program in construction of dry docks, berthing and mooring facilities, and large repair shops was undertaken, and this work has been carried forward with record speed.

In addition to these fixed installations, the Bureau is building more floating repair docks than have ever before been planned by any nation in a comparable period.

To relieve Navy Yards of the burden of servicing the many smaller vessels used in coastal and harbor patrol, mine sweeping, submarine detection and attack, coastal convoy, and net tending, and to provide local ammunition and fuel storage, as well as crew accommodations for such vessels, a total of 60 section bases have been authorized, the majority of which are already in service.

The capacity for fleet overhaul and for ship construction in Navy Yards has already been greatly increased by this program, and additional facilities are continually reaching a usable stage.

Housing for the rapidly expanding personnel of the Navy has required several major construction programs. In addition to the numerous Air Training Stations already noted, existing Naval Training Stations at Newport, R. I., Norfolk, Va., Great Lakes, Ill., and San Diego, Calif., have been greatly enlarged, and will be supplemented by new stations in Maryland, Idaho, and New York.

Hospital facilities have also been expanded at a rate corresponding to the increase in Navy personnel. These range from small temporary dispensaries at outlying stations, through 500- to 1,000-bed hospitals at training stations, air bases, and other necessary locations, up

to the magnificent new National Naval Medical Center at Bethesda, Md.

Utility services have presented many problems. The improvement, augmentation and duplication of water supply facilities, proper sewage disposal provisions, and other sanitary problems have been undertaken and solved.

Fuel storage for the fleet has been provided at locations covering nearly three-quarters of the circumference of the globe.

New ammunition depots were required and provided at Burns City, Ind., Hastings, Nebr., McAlester, Okla., and Fallbrook, Calif., while older depots were vastly expanded, notably at Hingham, Mass., and Hawthorne, Nev. Small depots are being provided at Charleston, S. C., New Orleans, La., and Indian Island, Wash. Major supply depots were constructed at Bayonne, N. J., and Oakland, Calif., and inland supply depots have been begun at Mechanicsburg, Pa., Scotia, N. Y., Clearfield, Utah, Spokane, Wash., and Barstow, Calif. At all Navy Yards and at many other points storage facilities have been greatly expanded.

Construction equipment, supplies and stores are assembled and partly fabricated at a depot that has been set up on the eastern coast primarily to serve overseas expeditionary forces. This has become a major Navy shipping point. Other depots of this type are under construction at other locations.

The use of civilian personnel on construction work, which is a rule in time of peace, cannot be continued in combat zones where enemy attacks are a serious threat. For work at these advanced locations construction regiments are being organized. Recruiting for the first regiment began in January, 1942, and since that time sixty-three regiments have been authorized. The regiment is composed of three battalions, each battalion comprising four Construction Companies of 226 men each and one Headquarters Company of 165 men. The regiments are made up of enlisted men who are skilled mechanics, carpenters, divers, steelworkers, blacksmiths, etc. Ratings range from Seaman, 2c, to Warrant Officer. These men will be trained in military tactics to be able to protect themselves in combat, if the occasion should arise. From the abbreviation CB for Construction Battalion the designation "Seabees" was selected for this organization, and this designation suggested insignia appropriate for the organization portraying, on blue background encircled by a hawser, a bee with a sailor hat on his head, a "Tommy Gun" in his fore hand, a wrench in his second hand and a carpenter's hammer in his rear hand. Designation and insignia were authorized by the Chief of the Bureau of Navigation on March 5, 1942. Many battalions have already been sent abroad, and these units will be in evidence to an increasing degree as the fleet advances. These construction units are the enlisted counterpart of the Civil Engineer Corps and are commanded by officers of that corps assisted by the necessary staffs of medical and supply corps officers.



SCOURGE of the PACIFIC

Wake Island . . . Coral Sea . . . Midway . . . the Solomons . . . whenever and wherever Tojo thrusts his task forces or transports . . . Grumman Wildcats and Avengers play an important part in wrecking his plans.

The success of F4F's and TBF's is not a matter of chance. Sea duty and deck landings demand the structural "guts" and precision performance that Grumman builds into every plane . . . characteristics born of long experience in designing and building aircraft for specific services.

These rugged Grumman planes are the scourge of the Pacific because they're built for the job . . . are doing it so effectively because of the skill and energy and daring of the lads who man them!



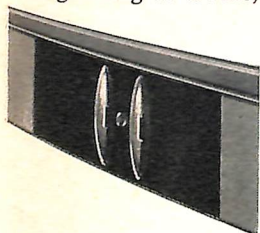
Wildcats & Avengers

Grumman Aircraft Engineering Corporation
Bethpage • Long Island • New York

UNTIL THIS IS OVER

SURFACE METAL RACEWAYS

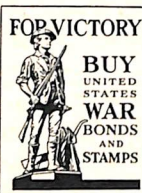
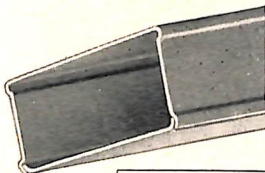
Plant changeovers call for new electrical layouts, and Wiremold is the speedy helper. It's the answer to space-saving wiring in trucks, trailers, and other mobile units.



PLUGMOLD . . . In factories and drafting rooms . . . at work benches, on test racks, and even on wheels . . . wherever convenient electrical outlets are needed, Plugmold will put them there.

Wiremold Surface Metal Raceways and Fittings conform to Federal Procurement Specification 540 and are listed by Underwriters' Laboratories, Inc.

These peace-time products by Wiremold are now on active duty, speeding production in war plants . . . fighting with the Armed Forces.



THE WIREMOLD COMPANY
HARTFORD, CONN.

American Antiaircraft

by

Major General Joseph A. Green, U. S. A.

Commanding General, Antiaircraft Command, Army Ground Forces

IT was American Antiaircraft Artillery that held Jap aviation at bay in Bataan and at Corregidor after effective American air resistance had been knocked out. Similarly, during the six months' siege of Tobruk in 1941, Antiaircraft held off the Nazi and Italian air attackers, and with only a small complement of antiaircraft guns, exacted such a toll on both high level and dive bombers that before the end of the siege, the attacks were considerably reduced both in number and effectiveness. At Malta, heaviest bombed spot in this war to date, fighter aviation and antiaircraft working in unison, have withstood literally hundreds of attacks thrown at that rocky isle by large and determined units of Italian aviation and the Luftwaffe. The British Isles supply countless examples of the effectiveness of Antiaircraft with its warning service, searchlights, heavy and light AA guns and barrage balloons.

From the first operations of the Nazi hordes against Poland, it was evident that this would be a war in which airpower would play an all-important part in the attack. Consequently, no defense can be assumed to be adequate unless enemy air attack can be beaten off or at least made so costly that it can not be long employed. Enemy planes can be assembled quickly over a given objective. Once started on their way, it is frequently impossible to assemble friendly fighters in sufficient numbers over the enemy's objective. Ground Antiaircraft defense must be on the spot at the time of attack, or the enemy almost surely will cause serious damage to both personnel and materiel.

Also, the airplane on the ground is one of the most vulnerable of targets to enemy air attack. If surprised before a sufficient number of fighter planes can be sent aloft, a friendly air field provides a target composed of helpless planes, easily damaged, with the gas tanks in every grounded plane an inflammable target for incendiary bullets. Ground defense of airdromes must be provided in sufficient quantity unless we are willing to accept a high percentage of losses while our own birds are on the roost. In addition, other ground installations in the theater of operations and elements of the field forces—armies, corps, and divisions—all require adequate Antiaircraft protection or support in combat operations. The problems posed by time and space are of such magnitude that friendly air support, unless greatly superior to the enemy, cannot possibly do the job alone. Because of the recognition of the need for positive protection from the ground against the enemy air attack, including attack

against friendly airdromes themselves, and against elements of our field forces, our Antiaircraft Forces have been increased tremendously during the past year and they are continuing to expand at an ever increasing rate.



Getting into action with an antiaircraft gun. After unlimbering the gun, the soldiers then lower the platform preparatory to placing it on supports and getting the gun ready to fire. Below: Major General Green, commanding the AA Command.

Army Signal Corps Photo



Today, American Antiaircraft is composed of Gun, Automatic Weapons, Searchlight, and Barrage Balloon units. These units are capable of being associated together in various combinations to provide the proper balance of weapons needed for the job in hand, according to the dictates of the immediate tactical situation. Thus, in one case, a single Automatic Weapons Battalion may be assigned to

a task alone, whereas in another situation a combination of heavy guns, automatic weapons, searchlights, and barrage balloons may be associated with fighter aviation and aircraft warning nets in order to provide a complete defense against enemy air attack. In

another case, Antiaircraft units, particularly those armed with automatic weapons, may be operating in close support of our mobile ground forces in providing them with added protection from enemy attack from the air as well as from the ground.

Whatever the job, Antiaircraft Artillery is prepared to take it on and render a good account of itself. In cooperation with our Air Forces—whose magnificent achievements in combat operations since our entry into the war are so well known and so much admired by all of us—our primary mission, of course, is to prevent the enemy from accomplishing his objective through the use of his air power. In cooperation with the ground forces, it must protect these forces from attack from the air and be prepared to assist in attacks from the ground. Whether this is done by shooting down the attacker, or driving him off from his air or ground attack, by causing him to drop his bombs where they will do little or no harm, or keeping him so high that he fails to discover important dispositions on the ground, the result is to our advantage. The number of planes dropped from the skies is by no means a true measure of the effectiveness of Antiaircraft. A better yardstick would be a contrast of the damage done where enemy air attack operated unopposed with the damage done where the objective is provided with adequate antiaircraft defenses.

Antiaircraft Artillery has a secondary mission today—that of defense against mechanized units. Because of the high muzzle velocity and rapidity of fire of antiaircraft guns, the armored vehicle, from scout car to heavy tank, is a likely target when the AA is not engaging aerial targets. All of our AA units now receive training in anti-mechanized defense.

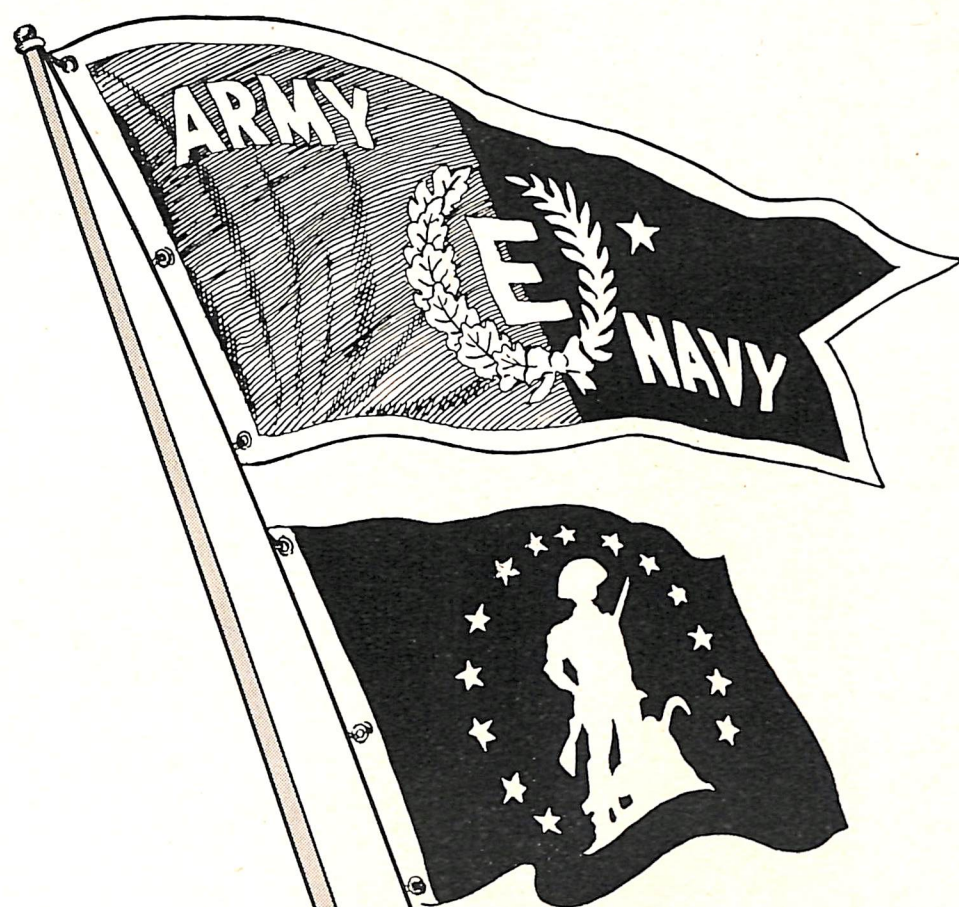
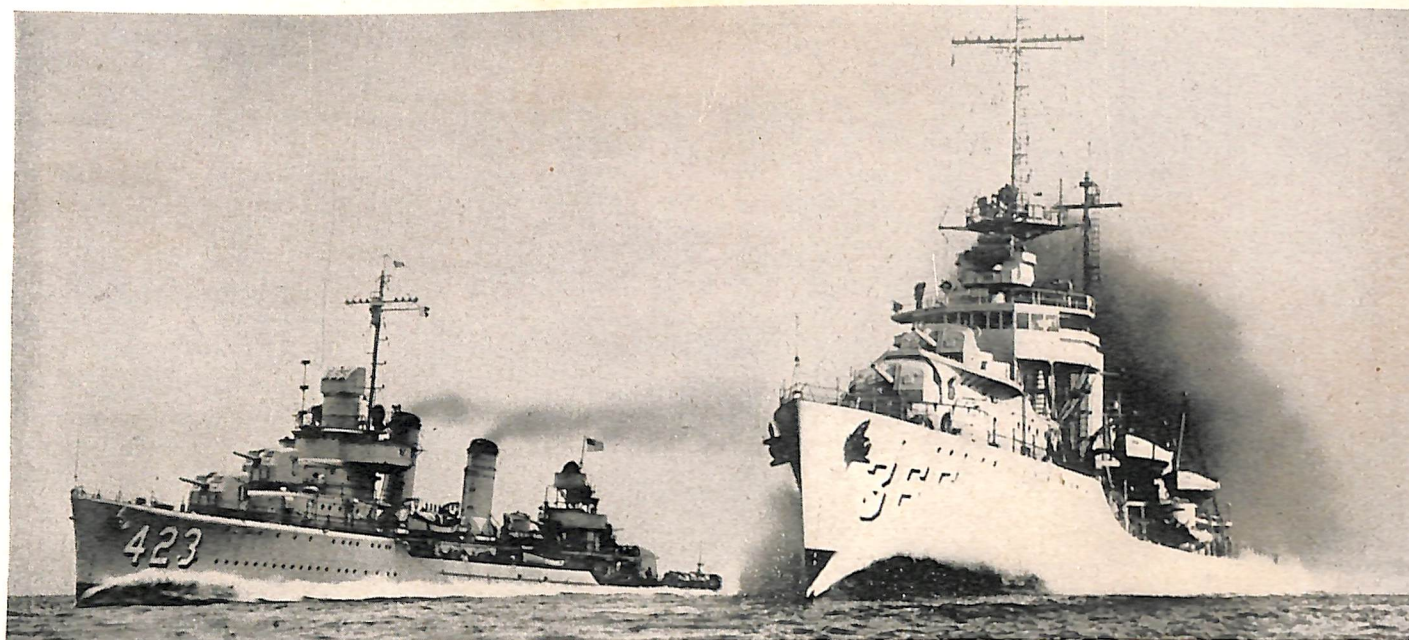
The Antiaircraft soldier of today has become an all-purpose soldier. Parachute attacks on Crete, for instance, included attacks against AA installations, due to the recognition by the enemy of their importance to the defense of the island. Today, the Antiaircraft soldier must know how to repel parachute attacks; therefore he is taught to use his rifle and bayonet as well as the gun or machine gun. The art of camouflage is emphasized in all Antiaircraft training, and the ability to move an entire antiaircraft unit quickly.

(Continued on page 164)

BATH IRON WORKS CORPORATION

BUILDERS OF NAVAL & MERCHANT VESSELS

BATH MAINE



WE ARE PROUD TO BE ABLE TO FLY
THE

ARMY-NAVY E WITH STAR

ALSO THE MINUTE-MAN 90% PARTICIPATION WAR BOND FLAG

The Contribution of the Electrical Distributor to War Effort

by

A. H. Nicoll

President, Graybar Electric Company, Inc.

MERRYLE Stanley Rukeyser, writing for the International News Service, recently stated "In peacetime, American business provided the public with a magnificent distributive machinery." Donald Nelson, in conversation with Mr. Rukeyser, said "I have a full appreciation of the economic function of distribution; maybe at this stage it would be helpful to the Government to bring more wholesalers, jobbers, and distributors into the Federal setup to make sure that the munitions are available where they are needed, at the right time."

Most people, familiar with the many complications of making the thousands of articles of war which we need so urgently, will agree that our greatest problem is to get essential raw materials, parts, and finished goods to the point where they are needed, at the time they are needed. If that is our greatest problem, why not make the fullest possible use of a group of experienced people who have spent their lives doing this very job—a group which can offer warehouses, stocks of goods, and trained personnel to expedite deliveries?

Whether or not a distributor appears in the picture, his functions must be performed. Someone must see that full information and specifications are given to the buyer, that a multiplicity of items are selected, ordered, warehoused, and delivered where and when they are needed. Someone must be responsible for seeing that the items ordered do the job they are intended to do; someone must be responsible for credits and collections.

Most manufacturers realize that they cannot perform these functions as well or as cheaply as can those who have specialized in them for many years. Take the actual case of an electrical manufacturer now operating entirely on war orders doing a volume of about ten million dollars. His policy is to sell entirely through the distributor or wholesaler. If no such distribution channel existed, he would have to set up a chain of warehouses with at least a half a million dollars in warehouse stocks. He would have to build an organization to contact all buyers of his goods. He would have to hire and train credit and collection men. He would have to greatly increase his capital. All of this would seriously hinder and slow down his principal function, that of manufacturing, and would actually cost him far more than the small margin he allows his wholesalers. Then his production would be cut and his costs increased. The electrical distributor, representing 100 or more electrical manufacturers, can obviously do a better job more cheaply than could any one manufacturer.



So much for the fundamental principles of the distributor's functions. What specifically has the Electrical Distributor or Wholesaler done in our war effort? He has performed, as no one else was equipped to perform, in speeding up our war effort both on direct services to government departments and in serving war construction and war manufacturing. He has helped tens of thousands of purchasing men (many of them new to their jobs) select the right electrical items for their purpose. He has helped thousands secure substitute items when some of the items wanted were unavailable. He has helped save days, and even weeks, in getting construction and manufacturing jobs started by prompt deliveries from stock and by knowing where electrical materials were quickly available and getting them where they were needed, when they were needed.

It is true that various government departments and arms makers are the big buyers today. It is also true that they do not materially differ from other buyers of electrical materials. They must be contacted, information and quotations must be furnished, deliveries must be made, service must be rendered, bills must be sent. All this must be done by people who know their business, people who know electrical materials and their application, who know where thousands of items are made and who makes them, someone who is up to date on prices and deliveries, someone who has a warehouse, a trained office

force, ample capital and responsibility. Government departments and war materials plants are located in every part of our country. Who can better serve them than the experienced, responsible electrical wholesaler located right in their vicinity?

Wherever you turn in a study of our war effort to date, you find that the electrical wholesaler has played a part in the remarkable job that has been done. In the early days he helped speed along army cantonments and air fields as well as naval establishments. He has helped in the rapid building of shipyards, airports, and war materials plants. He is now helping in the tremendous job of converting whole industries from peace-time manufacturing to the production of war essentials. He has and will play an increasingly important part in furnishing emergency service on the maintenance supplies, more needed than ever now that industry is on a 168-hour week. All this he has done on a constantly lower margin of profit, which to begin with was less than it could be done for by any other method.

We give you just three examples of badly needed service to the Army, Navy, and war industries—examples which may seem unusual to you but which are occurring hundreds of times every day:

1. A complete telephone system for a distant military base. . . . This wartime order to an electrical distributor covered everything required for erecting, installing, and maintaining the telephone communication—all the switchboard apparatus, instruments, tools, wire and cable. It included dozens of small items — connectors, splicing compound, switchboard lamps, and the like—that come from scores of different manufacturers, yet go together on the job. The electrical distributor's experience helped avoid omission of any small but essential item. The complete shipment was assembled, safely packed, and dispatched on time.

2. Day-to-day delivery from a stock of special lamps. . . . An important builder of naval craft buys large quantities of special lamps for this service. An even flow of these lamps into his yard as the work progresses protects him against delay, while avoiding the storage and inventory problem of taking delivery on huge lots direct from the manufacturer. The electrical wholesaler is always ready with the lamps he needs, even though factory orders take many weeks to fill.

3. "57 varieties" shipped overnight. . . . A fire in this plant seriously crippled the electrical system just at a time when war work brooked no delay. They called the electrical

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The Procurement of Naval Personnel

(Continued from page 108)

civilian sources for many thousands of Reserve officers.

Naval Officer Procurement may be roughly divided into two divisions: Undergraduate procurement and graduate procurement.

Undergraduate procurement is handled through the Navy "V" Programs—V-1, V-5, and V-7. The V-1 and V-7 programs are complementary. The V-1 program offers the freshman or sophomore in accredited colleges an opportunity to enlist as an apprentice seaman in the U. S. Naval Reserve. He is placed on inactive duty and is required to remain in college at his own expense taking certain required subjects desired by the Navy in order to maintain his status. Prior to the end of his sophomore year the V-1 enlistee is given a qualifying examination to determine his eligibility for transfer to Class V-7 for further retention in college, or for orders to active duty as an enlisted man if he fails such examination. The V-7 program offers the junior or senior in accredited colleges an opportunity to continue his education to a baccalaureate degree while in the status of apprentice seaman, on inactive duty by transfer to Class V-7 or by enlistment in Class V-7 if he has not previously enlisted in Class V-1. Certain courses of study are required by the Navy during this period. On graduation, the V-7 enlistee is ordered to a one month's probationary school as an apprentice seaman and then to a three months' school as a Reserve Midshipman. On successful completion of this school, he is commissioned as an ensign in the Naval Reserve.

Class V-5 is the Aviation Cadet Program. Candidates may enlist in this program after graduation from high school. College training, although not required, is desirable and is a definite asset to the aviation cadet. College students may enlist directly in Class V-5, or may transfer from Class V-1 or Class V-7 to Class V-5 at any time if qualified. Upon successful completion of the full flight training course, the aviation cadet is designated as a naval aviator and is commissioned as an ensign in the Naval Reserve, or second lieutenant in the Marine Corps Reserve. He is then ordered to further active duty in the Aeronautic Organization of the Navy.

College graduates may be enlisted in Class V-7 for immediate active duty up to their 28th birthday. However, if a college graduate has held his baccalaureate degree as long as one year, he will normally qualify for a commission through Class V-11. Candidates are eligible for enlistment as apprentice seamen in V-11 one year after graduation from an accredited college and up to their 39th birthday. This program, as it pertains to men under 28 years of age, parallels the V-7 program in that those physically qualified for sea duty are ordered to the same type of training school as the V-7 candidates and are commissioned as en-

signs for general deck or engineering duties upon successful completion of this school. Those men under 28 years of age not physically qualified for sea duty and those over this age are ordered to a one month's probationary school as apprentice seaman. Successful graduates of this school are given a probationary appointment in the Naval Reserve and ordered to one of the various types of probationary officer schools. On successful completion of these schools the probationary officers are commissioned as special service officers in the Naval Reserve. In addition to the "V" Programs of Naval Officer Procurement, college graduates are being procured and appointed by the Naval Officer Procurement Service to fill specific billets in the Naval Service.

The Women's Program consisting of Women Officers appointed in a probationary status and detailed to perform Technical and Administrative duties, and the V-9 and V-10 programs are under the cognizance of the Naval Officer Procurement Service. Women officers for technical and administrative duties are appointed and ordered to indoctrination schools in order to fill specific billets and to release male officers for sea duty. The V-9 program is an Officer Candidate Program, similar to the V-7 program and designed to produce qualified Women Naval Reserve officers to replace male officers in routine duties on shore. The V-10 program is the Women's Enlisted program designed to produce qualified enlisted women who will replace enlisted men in routine duties on shore.

Today the Navy is practically ten times greater than it was a few short months ago. In this short space of time the Navy is carrying its challenge and the pattern of ultimate victory to the seven seas and the boundless skyways of the world.

The United States is not satisfied with anything less than the best of fighting men and the best of fighting ships—and we are getting them. The heroic deeds of Midway, the Coral Sea, and the Solomon Islands leave no doubt of this fact.

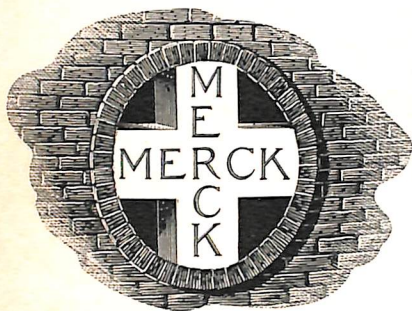
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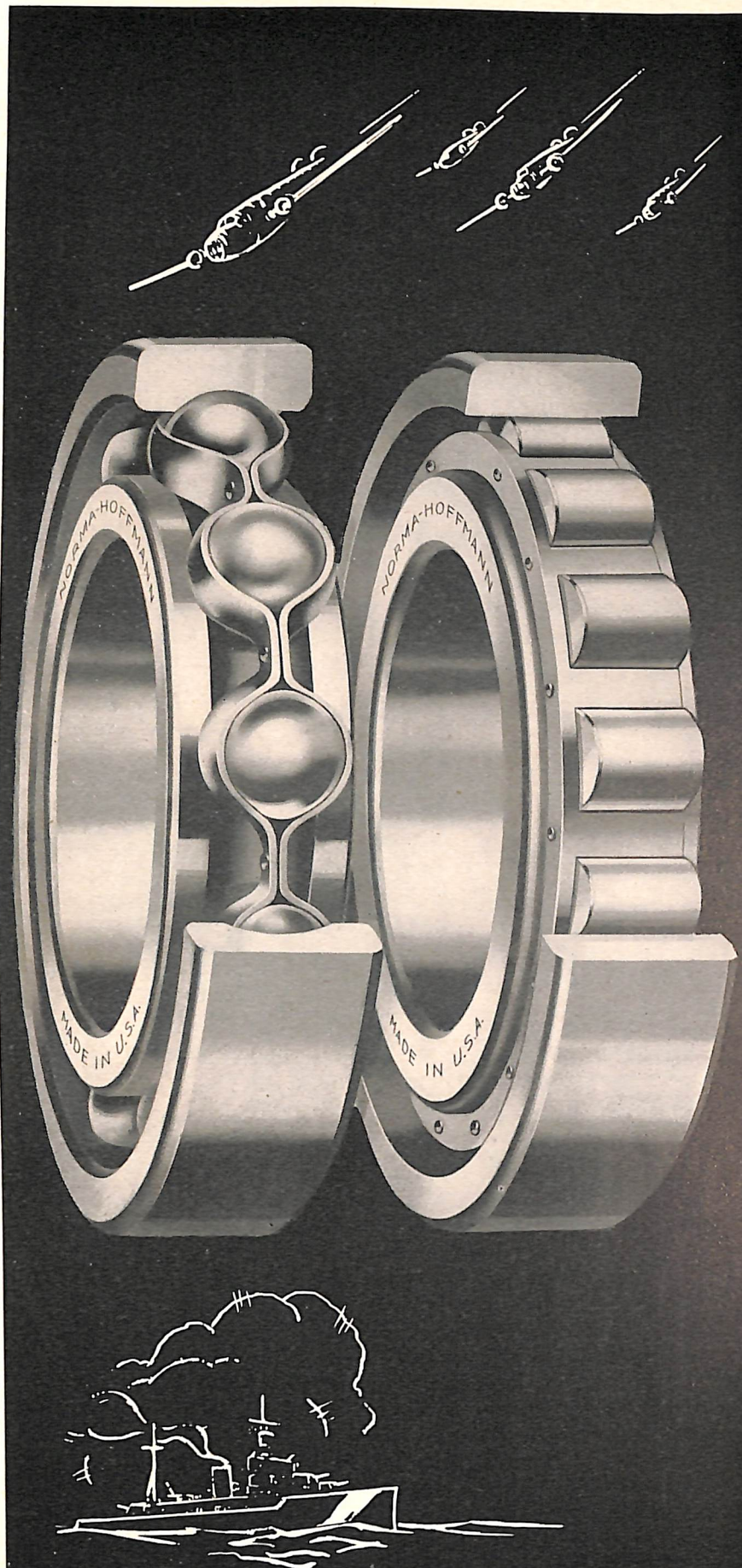


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U. S. Cavalry Today

by

Brigadier General Rufus S. Ramey, U.S.A.

Commandant, The Cavalry School

THE world listened and watched with tense incredulity during September 1939 while Hitler's new German Army destroyed what had been considered a powerful military machine, the Polish Army. Then in May and June of 1940 the world experienced the tragic nightmare of France's conquest in a few short weeks; when the German Army first demoralized, then destroyed or captured the elements of what was looked upon as a modern military force, the French Army. Initially, German success was mistakenly attributed to overwhelming superiority of armored units and air forces. But with more facts and time to evaluate them, other significant factors became apparent to our War Department. Most important was that in organizing the new German Army, there was a radical departure from old, preconceived ideas; the new Army emerged to world view as a scientifically blended product, with all the necessary elements and means integrated into highly flexible organizations. The guiding consideration in the German military machine was flexibility of organization, providing ability to concentrate and employ in any theater, or at any required point or time, exactly the means required. This development may be summed up in two words—task organization.

As a consequence of analysis and evaluation of these facts, and based on our own maneuver experience, our War Department initiated application of pertinent lessons by reorganizing the U. S. Army, developing new weapons and equipment, new tactical procedure, technique, and methods. In this process the U. S. Cavalry has emerged completely revitalized, with a far greater importance in the vast Army now being raised and trained, and with a vital role to play on the battlefields for which we prepare.

To appreciate this change we must examine a picture of modern campaign and combat to see the important influence that Cavalry exerts and how it orients the action of higher commanders by depicting the composite picture of hostile operations.

The speed of modern combat makes it imperative that commanders be able to obtain, evaluate, and act on information for more rapidly than ever before. In cooperation with the Air arm, Cavalry secures the necessary information. Recent combat experience has necessitated a revision of air reconnaissance tactics, since only the high-speed reconnais-

sance plane, flying at great altitude and obtaining its information by camera, can be expected to operate successfully. The low, slow flying plane can no longer be expected to operate over enemy areas without prohibitive loss. Consequently, Cavalry must secure and transmit the detailed information required by higher tactical commanders. This, although important, is only one of the functions of

ganization has been furnished, in addition to horse means, mechanical transport which can move with the necessary speed to great distances, in all types of terrain and weather, to secure information or to fight.

Since information obtained is useless unless transmitted rapidly to the interested commanders in time for them to act upon it, modern means of transmission of informa-

tion, such as radio, motorcycles, bantams, and other special vehicles, have been provided. These means supplement the horseman, which remains the old dependable for reasonable distances, in difficult terrain, and all types of weather. And, in order to be able to fight as contemplated, Cavalry units now have the

necessary modern weapons immediately available.

Because of its many varied missions, especially because Cavalry acts as the ground eyes and ears for higher commanders, the Arm must be characterized by high flexibility as to its organization and equipment, and be versatile in its tactics and technique. All the necessary means to enable fulfillment of these requirements are found in U. S. Cavalry units today, both horse units and mechanized units.

But, the impression must not be gained from the foregoing that the job of U. S. Cavalry is reconnaissance alone. Our current doctrine, as contained in the tactical bible for combined arms operations, Field Service Regulations, charges Cavalry with all the combat missions of the Infantry, both foot and motorized, and many of those of light armored units when the need dictates. Both horse and mechanized Cavalry is expected to, and is equipped to fight offensively or defensively; to seize and hold terrain; to screen other troops or provide security for their front, flanks, or rear; to fight delaying actions; to harass enemy formation and installations; to provide higher commanders with a highly mobile reserve in any situation, and especially to meet hostile paratroop operations.

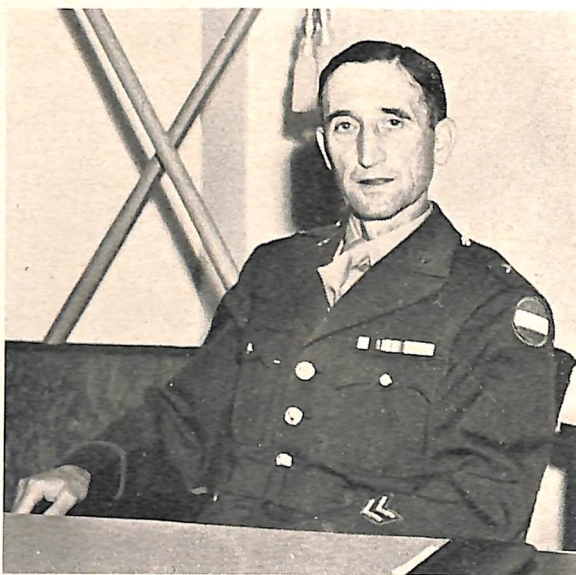
Further, if we are to have a correct picture of our Cavalry arm today, another fact must be appreciated. Contrary to mistaken belief in some minds, properly trained and employed horse Cavalry is no more vulnerable to air attack than is Infantry; certainly it is not the helpless mass that men jammed in trucks constitute. The reason should be apparent; the horse is not road bound. The horse-

(Continued on page 160)



Many forms of mechanization enter into modern Cavalry in the United States Army. Left shows scout cars in simulated attack on an enemy position, while the right photograph shows a Cavalry regiment in a mass column of 4's moving speedily toward its position (note the motorcycles, jeeps, and, in the rear, scout cars). Lower: General Ramey.

Signal Corps Photos



Cavalry, which must also be able to fight, dismounted or mounted, either in offensive or defensive combat.

Thus, in addition to the larger U. S. Cavalry units, horse and mechanized regiments, horse brigades and divisions, we find Cavalry integrated primarily as mechanized reconnaissance elements into the various types of other larger units and task forces of our Army; infantry divisions, foot and motorized, mountain units, armored units, and amphibious units. To fulfill the demands upon it, Cavalry must have, and in its present or-

America's Desert Soldier

(Continued from page 120)

enemy's known assembly area, dismounted, and moved in and around the bivouac.

The performance of vehicles was generally excellent, particularly with respect to tanks, half-tracks, and the quarter-ton "peeps," which took the worst the desert had to offer. Desert operations were conducted on the thesis that, unless maintenance of equipment and vehicles reaches a high degree of excellence, the cost and loss of equipment will be prohibitive in money and fatal in battle.

Problems of supply, always complex, presented the desert soldier with new and varied questions. Added to the vast distances involved, the speed with which motorized columns can move in open country became a major factor in keeping men in the field supplied with fuel, ammunition and food. Certain faults in operations became apparent—as did means of future correction.

Air-borne supply entered the picture. In such open country, armored units ended small engagements some distance from the main body. At that point, out of fuel and ammunition, they would withdraw a short distance. The first unit resupplied could return to the attack or effect a withdrawal to the main body. Supply planes dropped ammunition, water and fuel in parachutes of different colors—one color for fuel, another for water, and so on, enabling ground forces to collect and use them promptly and with no lost motion.

The necessity for uninterrupted communication became clear to troops in isolated units, uncertain of the location of the main body or the front line. Radio, wire, messengers, planes and pigeons were employed during the first maneuvers, radio proving the most satisfactory. Here, again, the desert soldier found special problems of radio communication because of mountain ranges and distances.

Thus, in coverall and helmet, the Amer-

ican soldier met the American desert. In the heat, the sand, and the arid badlands of the Mojave, he found conditions and terrain generally similar to the worst American troops face in the theatres of war now occupied by us and our Allies, or into which the United Nations must move.

**This article was prepared by General Gillem when he was Commanding General of the Desert Training Command. In November his command was transferred and Maj. Gen. Walton H. Walker relieved him in the Desert Command.*

Tank Destroyers

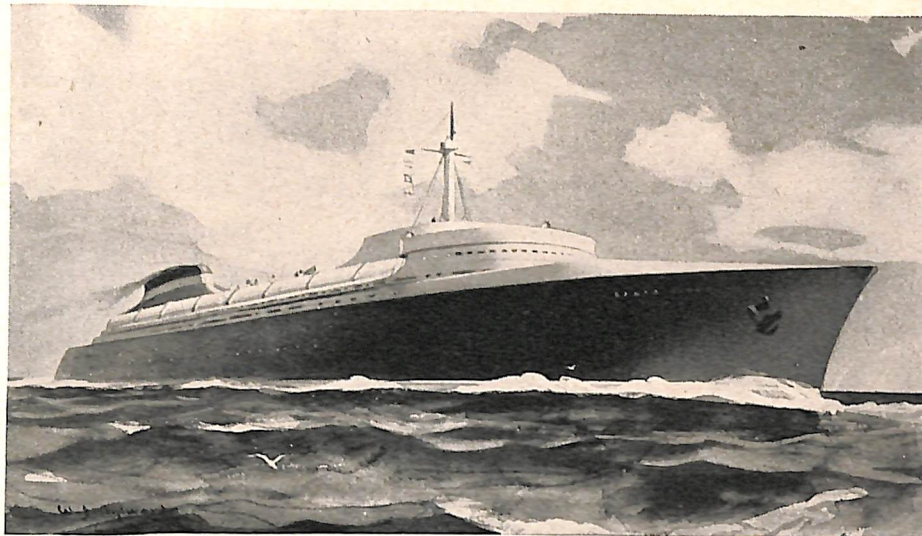
(Continued from page 118)

The T. D. Battalion, smallest tactical unit to be employed on an independent mission, is composed to include, organically, elements of the various branches necessary to make it self-sufficient. Usually held as a mobile reserve in support of divisions, corps, and armies, T. D. units must be able to move rapidly to meet any armored force threat acting over a wide zone.

Destroyers combat the tanks' fire power with greater fire power—a high velocity, flat trajectory 75 mm or 3" gun. They combat the tanks' mobility and independence of operation with greater mobility. Armor is reduced to achieve this maneuverability and T. D. units depend on their ability to fire four or five rounds from one position, dash to an alternate position, and re-open fire before the enemy's guns begin to register. The cougar, chosen as an official symbol, epitomizes T. D. action.

The particular manner in which they seek with motorized armored reconnaissance, strike with heavy mobile weapons, and destroy with repeated trip-hammer blows and well-timed maneuvers constitutes its tactical doctrine.

Soon, on all battlefields—wherever there are tanks—our destroyers will, in the words of our motto, SEEK—STRIKE—DESTROY.



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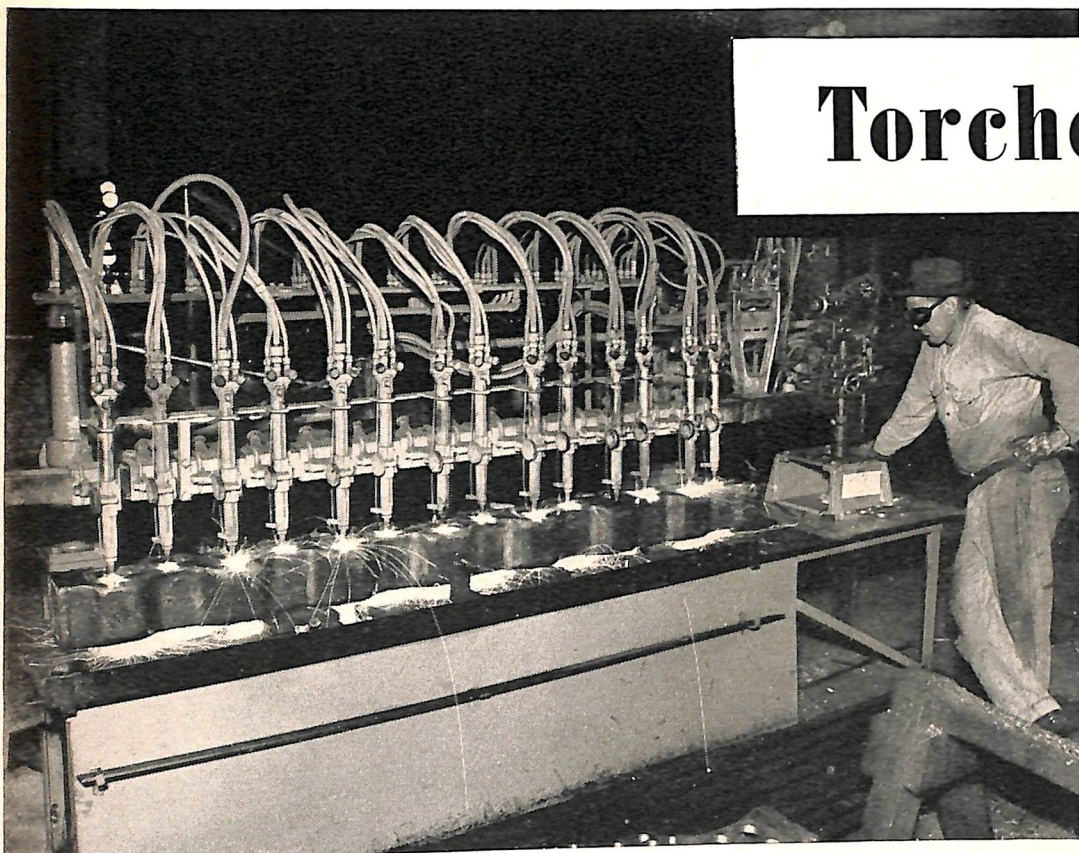
While we devote our full effort to war service, we continue to prepare for a greater tomorrow. We have built and are building a large number of the most efficient ships yet devised. We are constantly planning new and superior transportation facilities. Our organization, ashore and afloat, is being tempered in the fire of the war to meet the obligations of a post-war world. GRACE LINE will be ready to meet the public needs of the greater day to come.



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Manufacturing Miracles for War

by

William P. Witherow

*President, National Association of Manufacturers
President, Blaw-Knox Company, Pittsburgh, Pa.*

AS a great American expeditionary force landed in Africa with tanks, trucks, mortars, and every other article of armament and supply that would make it a potent and self-contained military machine, and as American tanks and planes blasted the shattered and retreating forces of Nazi General Rommel out of Egypt and Libya, the Italian radio blatted in defeat, "What can we do against the full resources of American factories?"

These were brilliant achievements of the military forces engaged, and of the military strategists who did the planning. American industry takes pride also in its own contribution. The fact that the Allies have turned from defensive to offensive operations is the best possible revelation that American industry again has "done the impossible." The Army and Navy have not counted on it in vain.

The Axis has no doubt been aware of the quality of our fighting forces. It has been aware also of our matchless ability to produce. But it has believed we could neither transfer any great part of our armed strength overseas against an air and sea blockade, nor fight a war effectively across two oceans, nor

convert our industries to war production in time to turn the tide of Axis victory. But the American genius for inventiveness and mass production and managerial efficiency has successfully made the switch to full wartime effectiveness, while the Army and Navy have trained their forces in new methods of warfare, transported them safely across the seas, and equipped them with American armament from our newly-created arsenal of democracy.

American industry, which has undertaken a production task without precedent in history, is ahead of the program set down by President Roosevelt at the beginning of 1942. The job can be measured only in astronomical units. During 1942, it will produce at least 60,000 military aircraft, 45,000 tanks, 8,000,000 dead-weight tons of merchant shipping, and 20,000 anti-aircraft guns—to mention only a few war necessities. This amounts to two ships a day, a plane every nine minutes, a tank every eleven and a half minutes.

For 1943 the President has already called for an additional 10,000,000 tons of shipping, 75,000 more tanks, 125,000 more military aircraft, 35,000 more anti-aircraft guns. This will be producing at a rate of better than one



tank every seven minutes, one plane every four minutes.

The vastness of such a program is not easily grasped. How much more it will be necessary to produce in order to assure victory cannot now be told. But our war services know that the greatest and most resourceful and most efficient industrial system in the world will meet their needs.

Industry is all-out for war. Factories have been torn apart and converted from civilian to wartime production with no consideration for anything except how quickly the way can be cleared for an ever-increasing flow of guns, planes, tanks, shells and ships.

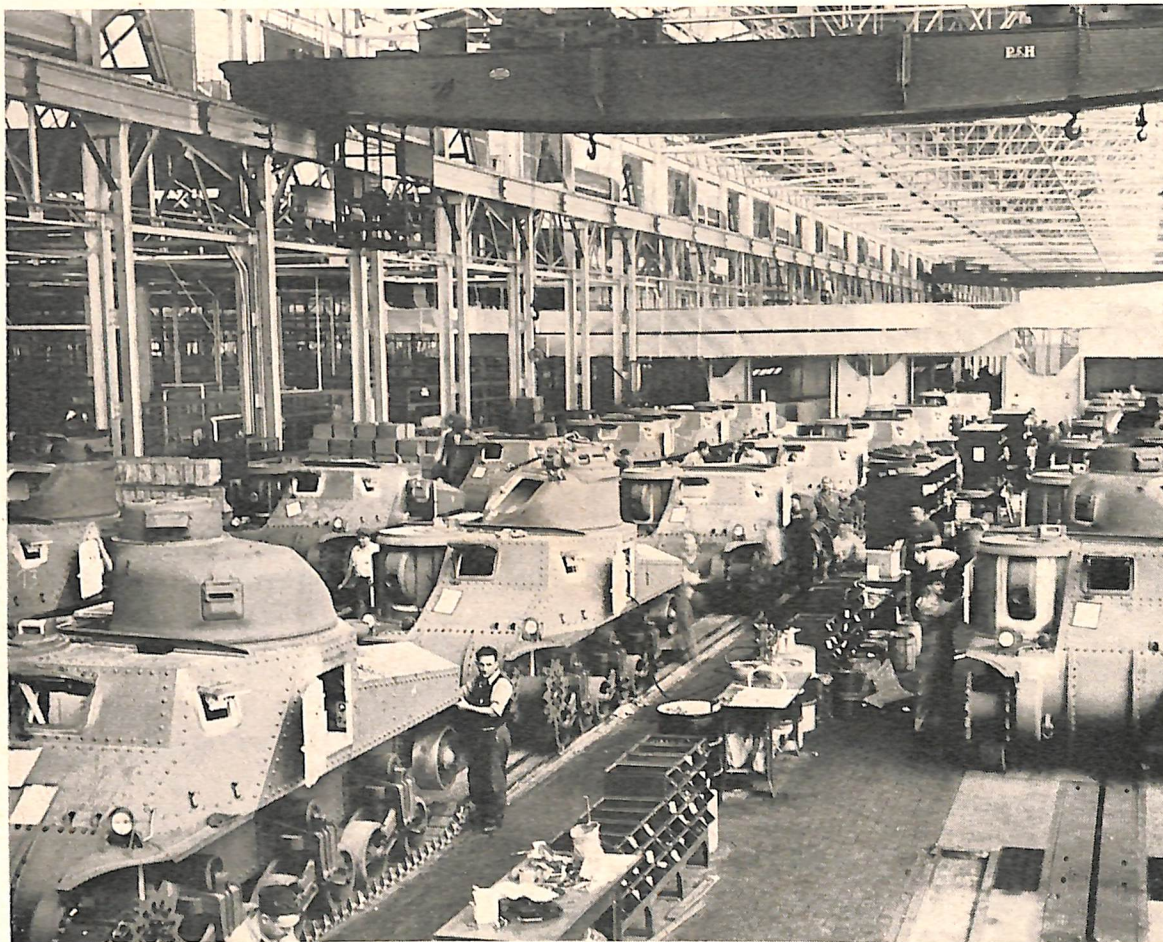
Where automobile assembly lines used to be, swarms of workers now work on bombers, guns, tanks, and engines. New machines start working even before they have been fully bolted to the floor.

The story is the same the country over—total conversion of a great part of industry for total war, a modern industrial revolution.

The impossible has been done. American industries have accomplished the impossible by the application of mass-production techniques to the making of munitions, aircraft, ships, and tanks.

Just as men of the armed forces must be trained, so must the men and women on the production front—an estimated 20,000,000 of them by year's end. Training the new industrial recruits is no small part of industry's epochal task. In this job industry is accepting its responsibility to the limit. It is also teaching the operation and maintenance of many of its war products to the men who will

(Continued on page 160)



Industry Turns to War—These are partially completed 23-ton M-3 tanks being turned out at a huge tank arsenal. The camera was directed toward the end of the three main assembly lines. Mass assembly methods developed in automobile manufacture are used. Note overhead cranes for heavy parts.

O. E. M. Photo

The Operation of the Adjutant General's Department

by

Major General James A. Ulio

The Adjutant General, U. S. Army

THE reorganization of the War Department into three basic commands—Army Ground Forces, Army Air Forces, and Services of Supply—became effective on March 9, 1942. Since then The Adjutant General's Department has functioned as one of the staff divisions of the Services of Supply. The Department is directed by Major-General James A. Ulio, The Adjutant General, who is charged with the responsibility of performing for the War Department and the Army such administrative functions as are prescribed by law or delegated by higher authority.

The Adjutant General has recently completed the interior reorganization of his Office, along functional lines. The changes effected consist in streamlining administrative methods to fit the new tripartite division of the military establishment, and have resulted in materially facilitating the carrying out of the duties and responsibilities of The Adjutant General's Department.

The major activities of The Adjutant General's Department embrace staff and operating duties within the War Department, and in the various field installations of the Military Establishment.

The current organization of The Adjutant General's Office in the War Department consists of:

The Personnel Division, which formulates and operates procedures pertaining to the procurement, maintenance, separation, and records of military personnel for all components of the Army of the United States. It is divided into six Branches: Officers, Appointment and Induction, Machine Records, Casualty, Decorations and Awards, and Enlisted.

The Operations and Training Division, which formulates and operates procedures pertaining to operations and training within The Adjutant General's Department. It is divided into three Branches: Operations, Classification and Enlisted Replacement, and Training.

The Miscellaneous Division, which formulates and operates procedures vested in The Adjutant General pertaining to the reproduction and distribution of military publications; maintenance of records of demobilized units and personnel; non-current records; furnishes estimates of required office supplies, furniture and equipment; and arranges space assignments of the Headquarters, Services of Supply. This Division is divided into six branches, namely: Publications, Reproduction, Demobilized Records, Old Records, Executive, and Civilian Conservation Corps.

The Office of Dependency Benefits, is the

operating agency for matters vested in the Adjutant General connected with allowances to military personnel for family dependents, and allotments by military personnel for dependents; it also maintains the necessary records of its administration of these affairs. It is divided into the Control Branch and



three Divisions, namely: Service Division, Finance Division, and the Processing Division.

The Control Division, which is charged with obtaining information regarding the efficiency of operations of The Adjutant General's Department; with the evaluation of the effectiveness and progress with which plans of The Adjutant General are executed and recommending to The Adjutant General adjustments in policies, methods, and organizations to increase such effectiveness and progress; coordinating of the control activities of The Adjutant General's Office and Department and compilation of various annual reports required by law. It is divided into four Branches: Methods Management; Inspection and Investigation, Planning and Statistical, and Policy and Historical.

The Army Postal Service, which is charged with the establishment, direction, and supervision of the postal service for the Army; supervises the establishment of Army post offices and is charged with the procurement and assignment of personnel of the Army Postal Service; the constitution, activation,

and training of Army postal units, postal regulating sections, and with the constitution and activation of base post offices; and the procurement and issue of supplies. It is the operating agency for embarkation post offices; the V-mail service; and the EFM system. It arranges for transportation of mail for troops located at oversea posts, and of classified official essential air mail to all points outside the continental United States. By means of field inspection units investigates conditions and needs of Army postal units, and irregularities and complaints concerning the method of handling mail. It is divided into six Branches, namely: Control, Operations, War Department Communications, Personnel and Training, Inspection and Investigation, and Transportation.

The Civilian Personnel Branch which is charged with the establishment of standards and procedures for the processing of all personnel actions; maintains personnel control records for budget; certifies payrolls for Headquarters Services of Supply; and proposes budget estimates and justification of personnel requirements for all civilian personnel Headquarters Services of Supply.

The Director of Records, who is charged with the operation and coordination of all activities of microfilming and disposition of records, Services of Supply; with the establishment and operation of a central microfilming plant and such auxiliary plants as may be necessary; and with the technical supervision of all Services of Supply noncurrent records.

The expansion of the Department has been very extensive since the entry of the United States in the war. For instance, the Army Postal Service, which covers practically the entire globe and is one of the most potent factors in maintaining morale, has increased from less than twenty Army Post Offices for overseas service on December 7, 1941, to more than eight times that number in operation abroad at present; and this in addition to some eight hundred Army Post Offices at domestic ports, camps, stations, staging areas, and ports of embarkation. Another graphic illustration of growth is shown by the volume of mail received: During the fiscal year 1940, 3,587,114 pieces; 1941, 15,764,277; and, up to July 1, 1942, a total of 43,537,556. Naturally, the rate increases steadily with the rapid rise in the strength of the Army.

The pressing need for additional trained administrative personnel has been met by the establishment of The Adjutant General's Schools, offering courses in administration,
(Continued on page 168)

Ordnance Department

(Continued from page 113)

of troops to operate them; various repair shops, training schools and other facilities—all for the purpose of enabling army trucks to run when and where they are needed.

It became necessary to develop a new and complete system of maintenance based on a definite schedule of preventive maintenance operation. As is well known, motor maintenance functions are divided into four major types or echelons. The first and second echelons of maintenance, which perform the first and second groups of maintenance tasks, are the responsibilities of the arms or services of the Army to which the Ordnance materiel is assigned. The third and fourth echelons are the responsibility of the Ordnance Department. And we continually pound home to the troops the fact that a bit of carefree carelessness in servicing may put the finger of death on the perpetrator and his unlucky comrades.

The fighting weapons of the American soldier are the world's best. They have been proved in combat. They are the culmination of 130 years of continuous research and invention by the Ordnance Department in which close watch was kept on ordnance developments in all countries abroad. The program is divided among the six research and manufacturing arsenals, each devoting its attention to a selected list of materiel. The research laboratories are among the world's best. The design and development of these weapons are carried on in collaboration with the using arms after authorization by the General Staff. At the Aberdeen Proving Ground in Maryland, facilities are maintained for testing completed models, testing and inspecting materiel as produced and also for ballistic research.

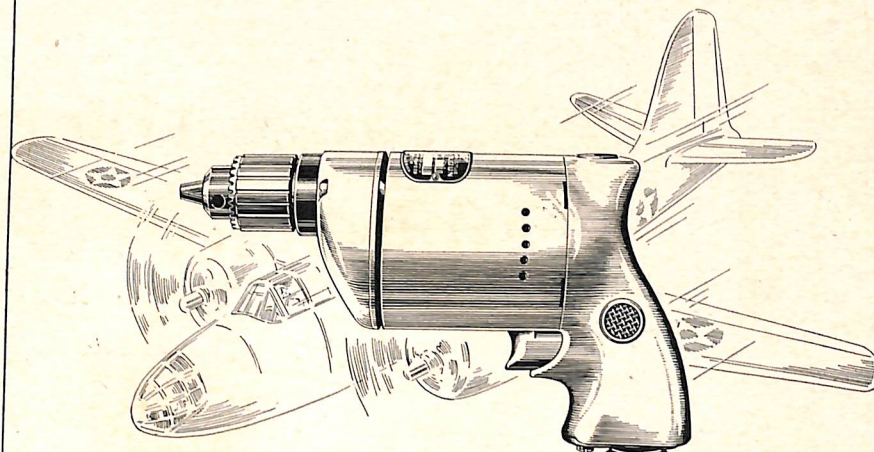
The semi-automatic rifle of the infantry has three times the fire power of the renowned Springfield. It is the world's best. Ordnance research developed centrifugal casting, and perfected cold working of cannon, put America ahead of all other countries not only in the science of

gun making, but also in mass production methods of gun manufacture. Aerial warfare necessitated the development of gun mounts radically different in design (high elevation), together with fast firing cannon of ever increasing calibers. The 37mm super machine gun was not copied from the 40mm Bofors, but was based entirely on American inventions; is a superior arm. Again artillery carriages were redesigned for high speed travel, self propelled artillery mounts were designed and produced. Our tanks are superior in speed, armor and armament to those of any other army. Our half track cars are a marvel of engineering ability.

Most of this development was by Ordnance officers; much of it with the aid of civilian engineers; all of it in collaboration with the using Arms. As fighting weapons require closer machining tolerances than most industrial products, the Ordnance Department developed the best system of gaging yet devised. This gaging system is rapidly spreading and no doubt will have a profound influence on industry in general. In fact, many Ordnance inventions of past years have materially affected civilian manufacturing methods.

Production of Ordnance materiel today is on a scale that beggars the imagination. Throughout 1941, the rate of output each month increased 25% over that of the preceding month, on an average. At the present time, production has reached the stage where it is measured in terms of so many trainloads or so many shiploads per day. In terms of money, the present program already exceeds \$50,000,000,000. The rate of output is still accelerating, and is expected to double in the not distant future. When that goal is reached well over half of industrial America will be producing war materiel.

We of the Ordnance Department are deeply conscious of the job we have to do. We will give the last we've got. Our troops set our sights for us. We are determined to see that design, production and supply of our military armament is all on high and that maintenance of equipment is of the very highest type. As far as I know there is no better prescription for victory.



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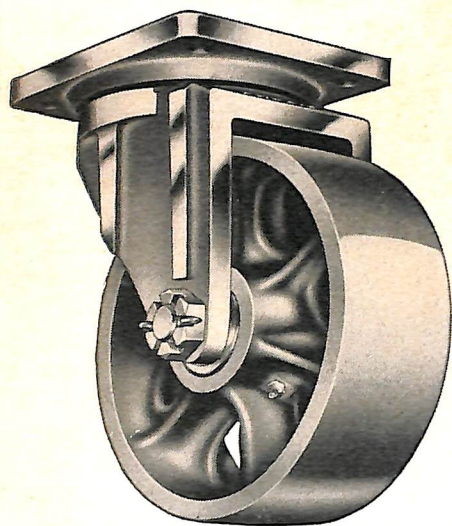
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The Coast Artillery Today

by

Brigadier General Lawrence B. Weeks

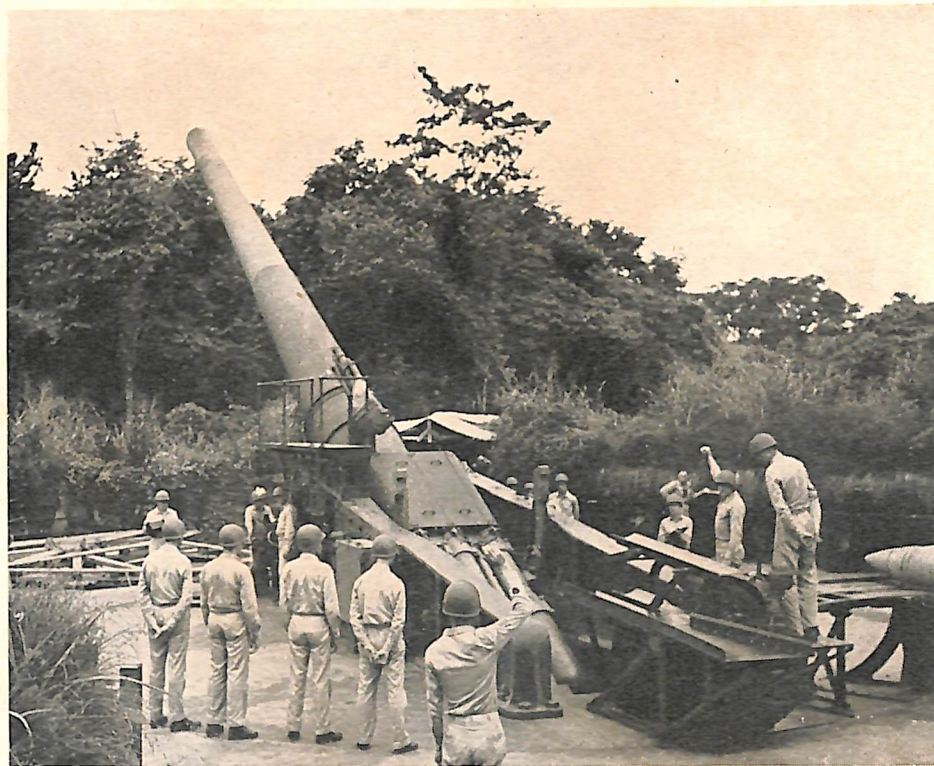
Commandant of the Coast Artillery School

THE Coast Artillery today as always is on the alert and in fighting trim. It has already proven its worth and ability in this present World War. The survivors of Bataan and Corregidor can testify to that.

Prior to the First World War, the Coast Artillery was looked upon as a branch of our armed forces devoted primarily to the idea of static defense. It manned the fixed defenses of important harbors in the United States, Panama, Hawaii, and the Philippines. The armament consisted essentially of fixed seacoast guns mounted in concrete emplacements and of submarine mines. Before the Armistice was signed, many Coast Artillerymen had been withdrawn from the fixed defenses and sent to Europe with regiments of railway and heavy tractor-drawn artillery. The Coast Artillery also manned the early anti-aircraft guns.

In the present war, a year old today, the progress and changes have been even more pronounced. Coast Artillerymen are in every part of the globe darkened by the war. No longer is the Coast Artilleryman restricted to a concrete emplacement facing seaward. His tasks are as diverse as those of the properly famed United States Marines. At the beginning of this war, and soon thereafter, the responsibilities of the Coast Artillery included not only the handling of its World War fixed artillery weapons, submarine mines, and mobile artillery, both railway and tractor-drawn, but also a vastly expanding and modernized anti-aircraft artillery and barrage balloon defense. The guidance of these diversified activities and organizations was under the Chief of Coast Artillery. The training of officers, officer candidates, and enlisted men was conducted at The Coast Artillery School, Fort Monroe, Virginia.

Under the reorganization of the War Department, effected in March, 1942, the Coast Artillery underwent a change as did many other branches of the Army. The office of the Chief of Coast Artillery was abolished for the duration of the war and until six months after its termination. The seacoast artillery and the anti-aircraft artillery were completely separated, although both were placed under the Commanding General, Army Ground Forces. The Coast Artillery School and the Coast Artillery Replacement Training Center



In a jungle somewhere in the Caribbean area, Coast Artillerymen are ready, with loaded gun, awaiting the order to "Commence Firing" which will send huge projectiles hurling miles to sea.

U. S. Army Photo

Below: Brig. Gen. Lawrence B. Weeks, commandant of the Coast Artillery School, right, congratulating a graduating student of the Battery Officers' Course. In this case the student exemplifies the spirit of co-operation existing with our neighbors to the South. He is 1st Lt. Eulogio Cantillo of the Cuban Army.



for the training of individual enlisted men of the Coast Artillery were placed under the Commanding General, Replacement and School Command. The Coast Artillery Board was placed under the control of the Requirements Division, Army Ground Forces. The

Submarine Mine Depot was placed under the Chief of Ordnance. A new office, that of the Commanding General, Anti-aircraft Artillery Command, was established to control the Anti-aircraft Artillery School and Board, the Barrage Balloon School and Board, the Anti-aircraft Artillery Training Centers, and Anti-aircraft Artillery Replacement Training Centers. Seacoast artillery troops operate under the Commanding Generals of Defense Commands within the United States, and abroad under Task Force, Department, or Theater Commanders.

General provisions for the composition, supervision, and control of the Coast Artillery Corps are contained in Army Regulations 90-5. These Regulations do not differentiate between the seacoast artillery and the anti-aircraft artillery.

Under the Regulation, the Commanding General, Army Ground Forces, is charged with the following specific duties:

1. *Training.*—The operation of replacement training centers and schools; the development of tactical and training doctrine and preparation of manuals and texts thereon; the training of all tactical units assigned to the Army Ground Forces, and of such other units, not assigned to the Army Ground Forces, as may be specifically prescribed.

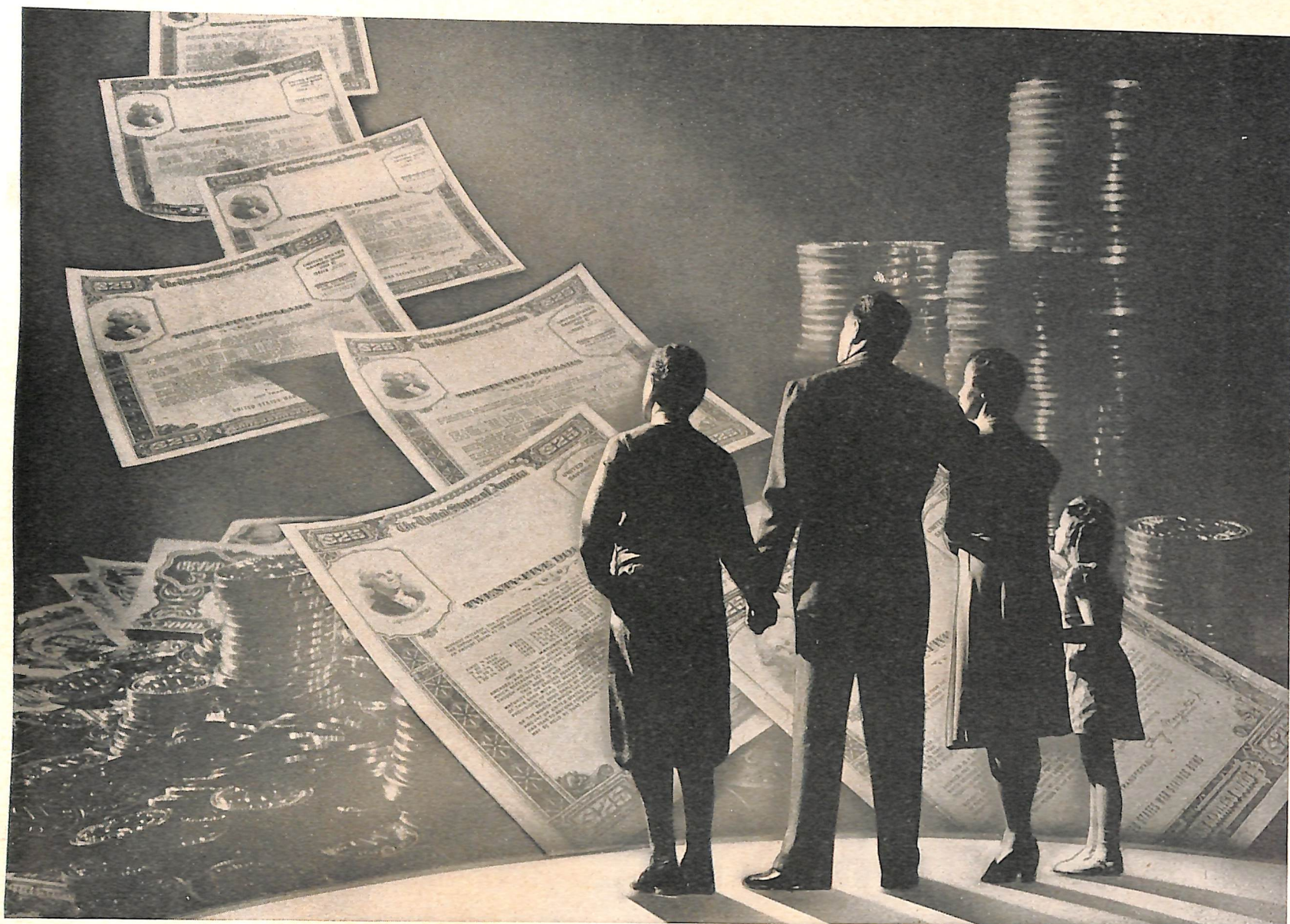
2. *Equipment.*—Determination of the military characteristics of weapons and other equipment and preparation of Tables of Equipment, Tables of Basic Allowances, and special Tables of Allowances.

3. *Organization and personnel.*—The preparation of Tables of Organization and the furnishing of coast artillery personnel to the Army Air Forces, Services of Supply, defense commands, task forces, theaters of operation, and base commands, in accordance with policies announced by the Chief of Staff.

4. *Supply.*—The submission to the Commanding General, Services of Supply, of such recommendations on construction, shelter, training aids, movements, supply, equipment, real estate, estimates of funds for field training and travel, and such other matters as may be necessary so far as pertains to units assigned to the Army Ground Forces and to training units for which the Commanding General, Army Ground Forces, is responsible.

5. Direct supervision and control over the

(Continued on page 158)



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This Year Give **WAR BONDS and STAMPS**

The Chemical Warfare Service

by

Major General William N. Porter

Chief of the Chemical Warfare Service

THE Chemical Warfare Service is unique among the Arms and Services in its diversified activities. It is the only Branch which combines all of the following functions: research and development, production of materiel, instruction of personnel of its own as well as other branches, and combat operations. The activities of this Service may be divided between offense and defense; offensively it produces and fires chemical munitions; defensively it produces and issues gas masks and other protective devices. Smoke and incendiaries have already been used extensively by our enemies in the present war. Just when the Axis powers will resort to war gases is unpredictable but should they do so, they will find our army prepared to retaliate with a terrible fury.

The United Nations Chemical Warfare policy is laid down in two statements by the Prime Minister of Great Britain and the President of the United States on May 10th, 1942, and June 6th, 1942, respectively, as follows:

(a) The Prime Minister on May 10th:

"I wish now to make it plain that we shall treat the unprovoked use of poison gas



against our Russian ally exactly as if it were used against ourselves, and if we are satisfied that this new outrage has been committed by Hitler we will use our great and growing air superiority in the West to carry gas warfare on the largest possible scale far and wide upon the towns and cities of Germany."

(b) The President on June 6th:

"I desire to make it unmistakably clear that if Japan persists in this inhuman form of warfare against China or against any other of the United Nations, such action will be regarded by this government as though taken against the United States and retaliation in kind and in full measure will be meted out."

This is a scientific war. Courage and a strong arm are still

Upper: Tear gas being sprayed from airplane for instruction purposes at the Chemical Warfare School, Edgewood Arsenal, Md. Lower: Flame throwers of the most modern type have been developed by the Chemical Warfare Service.

C.W.S. Photos

needed in modern combat but more and more, hostile actions depend upon the accumulated knowledge of science to gain the advantage. Chemical Warfare is in keeping with this trend. It utilizes the principles and applications of many fields of science and depends upon a highly developed chemical industry within the country to provide both the technical personnel and adequate production facilities. Wars are carried on to overcome and subdue the enemy. For this purpose chemical warfare is highly effective since it is capable of producing many casualties yet it does not maim or fatally injure as large a percentage as other weapons. Just as the introduction of other weapons met widespread disapproval, similarly modern chemical warfare has been greeted as a fiendish invention. Improvements in artillery and gunpowder were characterized as "contrary to humanity and calculated to extinguish military bravery." Those who first used small arms were condemned as "cowardly and base knaves who would never have dared to meet true soldiers face to face." Yet history records that a weapon once proved to be efficient is not discarded until a more effective weapon is brought forth. Consequently, we may look for chemical warfare in all its phases as an offensive weapon which a desperate nation will employ to survive.

Chemical warfare is not new. History records its use at the siege of Plataea in Greece in the years 431-429 B.C. Burning pitch and sulphur were used by those besieging the city to produce fumes which would overcome the defenders. Sporadically through the Middle Ages we read of these agents being employed in attacks upon defensive positions.

Chemical warfare faded into the background during succeeding centuries probably because of two reasons: first, the increased range of other weapons made a successful approach for the purpose of using chemicals difficult and, second, the lack of a highly developed chemical industry made it impossible to secure adequate supplies of chemical munitions.

Modern chemical warfare, which began with the chlorine gas attack by the Germans on April 21, 1915, was merely a repetition of history on a large scale, with modern equipment which utilized both the fundamentals in science made during the previous century and the manufacturing possibilities of a new chemical industry.

As the first world war continued chemical warfare played an increasingly prominent part. The success secured by the use of war gases in this conflict makes it extremely likely that they will again be employed on a large scale. Recognizing this fact our Government

(Continued on page 158)



Functions of the Provost Marshal General in the War

(Continued from page 112)

police.

A function of The Provost Marshal General is to intern enemy aliens who, having been arrested and given a hearing by the Department of Justice, have been deemed dangerous to the war effort. Although internment camps for enemy aliens and prisoners of war are under the jurisdiction of the Service Commanders, policies regarding the handling of internees are prescribed by The Provost Marshal General who has been charged with carrying out the provisions of the Geneva Prisoner of War Convention of 1929. The camps are guarded by Military Police Escort Guard companies trained for this type of duty.

A prisoner of war information bureau was established in accordance with the provisions of the Geneva Convention. The Bureau, working through the International Red Cross in Geneva, Switzerland, exchanges information about enemy prisoners of war in the hands of the United States Army and about United States citizens, civilian and military, held by the enemy.

All of these functions are designed to aid the war effort. There remains one function which is concerned not with the period of actual fighting but with the period after the fighting has passed on to new areas or has altogether ceased.

The Secretary of War has ordered The Provost Marshal General to institute a procurement and training program designed to produce the military personnel and the civilian technical and advisory personnel necessary for military government. The initial steps for setting up military governments are to be taken now rather than to wait until the actual moment of occupation. The Provost Marshal General has been instructed also to integrate under War Department leadership all agencies, military and civilian, concerned in making broad plans for military government in occupied territories.

To provide training of top administrative officers for future detail in connection with military government a School of Military Government has been established at Charlottesville, Virginia, the first school of its kind ever organized in the United States. On August 29, the first class, from the grade of Captain to Colonel, completed the sixteen weeks' course. Later on, according to plans, junior commissioned personnel for military government and enlisted men for occupational police will be trained at two new schools to be established at The Provost Marshal General's School Center. Civilians with special technical and advisory skills in a variety of professional fields will be enrolled and ear-marked for duty in special areas. In cooperation with a number of colleges and universities it is planned to give them some brief training in the backgrounds of those areas in which they will ultimately serve.

The Bureau of Aeronautics

(Continued from page 115)

sands of subcontractors, have put us, in a comparatively few months, ahead of any other nation in aircraft production. It will be an easier job now to increase production to 10,000 planes a month than it was to bring it up from 400 to 5,000 per month.

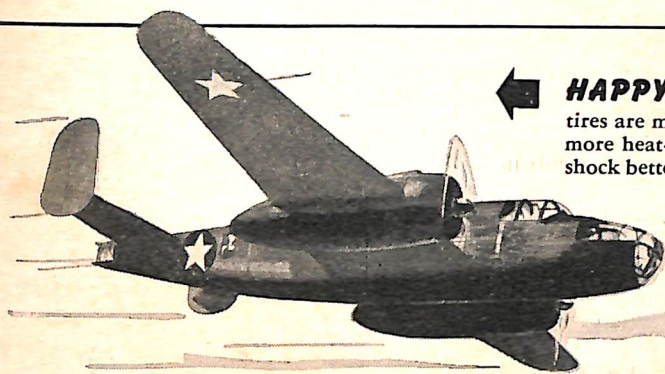
The response to our program of pilot training has been equally encouraging. Cadets are now being taken into our four great pre-flight training centers at the rate of 30,000 per year. When these men progress through the carefully planned stages of preliminary, advanced, and, finally, operational flight training, they are ready to uphold in the Fleet the finest traditions of the naval aviators before them.

The record of naval aviation in this first year of the war has shown what can be done. From now on, with more equipment, and with improved types of equipment, the record will speak for itself even more loudly.



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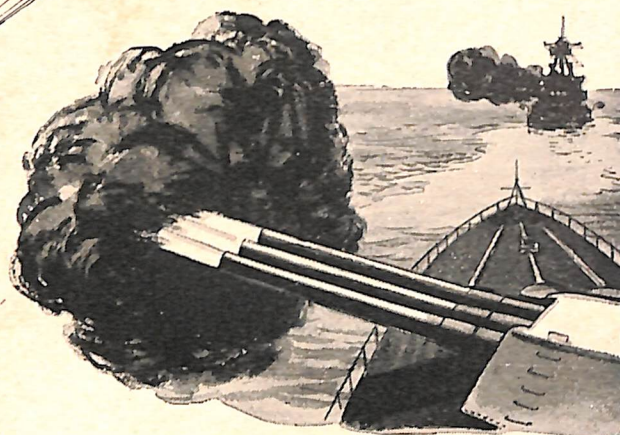


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The Finance Department

by

Major General H. K. Loughry

Chief of Finance, United States Army

THE Finance Department was created by the Act of June 4, 1920, as a separate branch of the Army to account for and disburse funds appropriated for the military activities of the War Department. The duty of preparing regulations governing property accounting was also assigned to the Chief of Finance; and personnel of the Finance Department make the annual audits of Army property accounts prescribed by these regulations. The creation of a separate branch to perform these technical functions was the result of the experiences of the first World War. The wisdom of the consolidation of fiscal activities into one Branch of the Army is attested by the facility with which the disbursing and accounting functions in the Army have been handled during the present war and the emergency which preceded it.

The Finance Department disburses funds through the agency of field Finance Officers, who perform their duties in accordance with law and administrative requirements as published in Army Regulations, but who are directly accountable to the Treasurer of the United States for funds placed to their credit by that officer. These Finance officers are also personally responsible for the legality of payments made by them, and for the correctness of the vouchers they pay, insofar as it is within their power to determine the facts.

Disbursing Finance Offices are of three types: (1) Finance Office, U. S. Army, which serves a number of War Department agencies located in the same region, usually in and near a metropolitan center; (2) Post, Camp, or Station Finance Office, which serves the post, camp, or station where located, less any tactical division or comparable unit having its own Finance Officer which may be stationed there; (3) Finance Office of a tactical unit, such as an Army Corps, or Division, which serves the unit of which it is a part. Administrative supervision of Finance Department activities in the field is decentralized to Service Command, Department, Army, Corps, and Air Force Finance Officers.

The tremendous quantitative problem that the Finance Department has had to solve during the current emergency is illustrated by the following figures. Whereas, for the fiscal year 1934, a total of \$277,000,000 was appropriated for the military activities of the entire War Department, in March of this year one Finance Officer alone disbursed \$475,037,840. During the fiscal year 1941, \$3,950,000,000 was disbursed by Army Finance Officers; for the fiscal year 1943, disbursements are expected to reach \$43,000,000,000.

This quantitative problem has been met both by expansion of established facilities, and by the establishment of new disbursing offices as the need arises. The Finance Offices,

U. S. Army, which bear most of the disbursing load for the procurement program, are manned by civilian employees. At the present time there are forty of these offices located in Boston, New York, Baltimore, Washington, Philadelphia, Atlanta, New Orleans, Pittsburgh, Buffalo, Detroit, Chicago, Omaha, Denver, Seattle, San Francisco, Los Angeles, and other key cities throughout the country. Several are in the process of activation with many more to follow. The civilian force, which totaled less than 1200 during the fiscal year 1940, has expanded to 14,500, and will further increase to over 20,000 in 1943.



To meet the demands for finance service with the field forces, the enlisted strength of the Department has expanded from 669 in July, 1940, to the present 8,900. Key men receive their technical training at the enlisted section of the Army Finance School located at Wake Forest College, Wake Forest, North Carolina. The Officer Candidate and Officers' Sections of the Army Finance School are situated at Duke University, Durham, N. C. The Finance Replacement Training Center is at Fort Benjamin Harrison, Indiana.

The major objective of the Finance Department in war as in peace is to insure that every War Department obligation is correctly paid immediately it is due. To this end, every effort has been and is being made to simplify procedure and to assist all personnel and creditors of the War Department to comply with requirements of law so that payments may be made promptly. Upon the recommendation of the Chief of Finance, the War Department recently removed the requirement for officers to obtain transcript statements of account when changing station, and

substituted an officer's pay data card, which together with the officer's identification card, will enable all officers, warrant officers, and Army nurses to draw pay promptly wherever they may be located. A similar card for enlisted men has been approved and will be issued to the service shortly.

The Chief of Finance has initiated action to simplify the War Department procurement code, and for the appropriations under his control, this simplified procedure has been placed in effect. The result is to remove a great amount of the overhead burden in administering fiscal procedure, with no lessening of proper accounting for funds. The property accounting system has also been greatly simplified to meet the demands of war conditions.

The problem of disbursing for task forces overseas is much more complicated than finance operations in the United States and its territories, since all troops abroad are, where possible, paid in the local currency of the area in which they are operating. Many monetary exchange and other fiscal problems which have arisen have been solved through the splendid cooperation of officials of the Treasury Department with officers of the Finance Department. As activities of the Army overseas increase, new methods and procedures are evolved to meet new problems, and to insure prompt settlement of obligations abroad. Several other government agencies are utilizing the service provided by the Army disbursing net overseas.

The Finance Department administers the Army pay allotment system, through which personnel of the Army may make provision for dependents, and be freed of all concern
(Continued on page 158)



In global warfare the Army Finance Officer often performs his field duties under difficulty. Shown above are Finance Officers preparing one half million Kronur for the payment of troops in Icelandic currency.

War Activities of the Office of the Judge Advocate General of the Navy

(Continued from page 126)

due course the legal problems connected therewith were submitted to the Judge Advocate General for solution. Remedial steps were initiated in the nature of changes in regulations and legislative enactments to facilitate the requirements of the war effort.

The whole impact of the increased tempo within the Navy Department came with the declaration of war. War powers, as distinguished from previous emergency powers, changed the complexion of many naval Acts and activities.

Contracts for construction of ships and planes were required to be adapted from the peacetime contracts involving the construction of single ships of one type and a few planes, into contracts that were suitable for mass production. It was necessary to obtain contracts from experienced contractors that would adequately protect the Government and yet not too greatly hamper the expeditious completion of the work involved.

There were many new questions and many variables involved in each type of contract. The experience of the last war with cost-plus contracts resulted in the Congress placing necessary restrictions in authorizing legislation. The profit question became important with contracts for enormously increased quantities of naval material, yet with the ever present necessity of speeding up production.

The Office of the Judge Advocate General was faced with the problem of drafting contracts to regulate these profits in the face of a labor and material market that was ascending in an unpredictable curve. It became necessary to relax many formalities and yet to maintain safeguards. Escalator clauses to fit variable costs of labor and material had to be devised for many varying situations.

The question of taxes enormously complicated the drafting of contracts. The re-

lations between the Federal Government, the contractor and the State Government became exceedingly complex because of the necessity to safeguard against the depletion of appropriations for war material by deflecting too large sums in tax payments.

The secrecy attached to a great portion of the materials manufactured for the Navy involved the maintenance of security of this information in the numerous contractors' plants. This requirement raised the question of the employment of aliens, and the conflict of legal questions with policy resulting therefrom.

The greatly increased activity of the Navy Department and the multiplication of all naval problems necessitated preparation and presentation of a vast volume of legislation requested or proposed to meet each situation as it arose.

One of the important functions of the Judge Advocate General that required considerable adjustment with the advent of war was the handling of courts martial and naval prisoners.

The Regular Navy and the Naval Reserve were expanded to keep pace with the building program. Without the benefit of longer periods of training and indoctrination of personnel, minor military offenses increased. The changed situation required a changed policy with regard to such offenses.

Although the establishment of such policies and the recommendations as to sentences are the province of the Bureau of Personnel and the Commandant of the Marine Corps, it is the function of the Judge Advocate General to review all courts martial and the action of convening and reviewing authorities thereon in order to insure that no illegal or unauthorized action has been taken with respect to any person in the naval service.

The policy that each and every court martial tried in the Navy is reviewed in the Navy Department insures the safeguarding of the legal rights of the personnel of the naval service. An equitable maintenance of justice is also obtained, variances in punishment due to varying personalities of courts martial are leveled

off to uniformity in the case of similar offenses.

It has been appreciated that the loss of services of officers and men caused by trials by court martial should be reduced as far as is compatible with the maintenance of a high standard of discipline. Likewise the conduct of investigations has been streamlined and reduced to conform to the exigencies of war service.

The realization of this situation, coupled with the necessity of more expeditious handling of all disciplinary cases in time of war, has resulted in furthering the policy with respect to assignment of punishments for certain minor military offenses. Whenever practicable, punishments are assigned by the Captain "at mast" which in normal times, under the regulations, would call for either a deck court or a summary court martial. Convicted offenders are given lightened sentences at Receiving Ships, whenever consonant with good wartime discipline.

Offenders while serving sentences, instead of being treated as ordinary prisoners, are given intensified military training to test their eventual usefulness and fitness for retention in the naval service. As a result of this policy, many good leaders are being developed from men who otherwise might be further punished or discharged but who now are returned to serve in the war.

Whenever possible, sentences are mitigated and the offender restored to duty on probation with an opportunity to wipe out his sentence of discharge.

It is necessary that the Navy as a whole must make an all out effort for the successful prosecution of the war, and it is the high endeavor of the Judge Advocate General not to permit legal processes to hinder and delay any prosecution of war and yet to guide the Navy's legal course in the channels of justice.

The Army Engineers

(Continued from page 131)

near mission in modern war depends squarely on the efficient functioning of

Engineer supply. The problem of keeping the flow of engineer equipment up to adequate levels is a vast and complicated one. But, his bulldozer or his dump truck is as vital to the Engineer as his rifle or his mortar is to the infantryman. Recently, the Secretary of War announced the completion of the pioneer road which Engineer troop units pushed through the Canadian wilderness to Alaska. Chief credit for that undertaking, completed in one short working season, goes without hesitation to the 10,000-odd American troops concerned. But, anyone who gives it a moment's thought knows that those troops were able to accomplish their mission only because a good supply organization gave them the tools and the equipment with which to work.

Nothing comparable to the problems of supply presented by the present global war have ever occurred before or imposed such heavy responsibilities upon the Army Engineers. Never before has the United States been compelled to raise, equip, transport and supply troops to all quarters of the earth. The issues of logistics and maintenance in World War I were simple when contrasted with those of today. In but few instances do these problems fail to enlist the services of the Engineers. Their diversified activities begin with the construction program underlying the entire war effort and carry through to the field of combat and beyond.

American Army Engineers are today stationed all over the world. Along with their comrades in other branches of the Army they have distinguished themselves in action and have gallantly upheld the traditions of this old and honored military organization. It is part of their routine task to clear the way, bridging streams, blasting obstacles and preparing the path for assault and occupation. After that they must repair and restore the havoc created by bombs and shells. In this or any other war, the work of the Engineers is never ended. There will still be war-born duties for them to perform long after our victorious troops come home.



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Army Dentists' Part in the War

by

Brigadier General R. H. Mills, D. C.

Assistant to the Surgeon General of the Army

THE induction of millions of men into the Army of the United States from all walks of life and varied economical backgrounds presents a tremendous challenge to the Dental Corps. Dentistry has assumed a major role in the present emergency in thought and function, since a large percentage of the selectees require extensive dental treatment before they can efficiently perform the varied duties incident to military life. A soldier must not only be able to see, hear, and walk, as well as pass other physical requirements, but he must also be able to properly masticate the Army ration. Infections in the oral cavity have also been of major significance in producing lowered resistance, as well as, secondary involvements in various sections of the body.

The initial standards of Dental Requirement at the beginning of the emergency presented too high a mortality in rejections, and therefore the dental requirements for entrance into the Army by the selectees was lowered drastically. The most recent ruling states: Individuals who are well nourished, of good musculature, are free from infections, and have a minimum requirement of an edentulous upper jaw and/or an edentulous lower jaw, corrected or correctable by a full denture or dentures will be acceptable. The various departments, particularly prosthetics, were thereby faced with a tremendous increased load and function. Recently, September 10, 1942, a change was made in Army Regulations 40-510 stating that those individuals with insufficient teeth to masticate the Army ration would be placed in an emergency classification which indicates that the patient should have immediate treatment.

The demands of the Dental Corps have been largely met by the assignment to duty of all available Reserve Officers and the procurement of a large number of civilian dentists. Extensive clinic and laboratory facilities have been set up in hospitals and stations in this and foreign countries. Double shifts of all dental personnel have been instituted in many of the camps, thereby utilizing 15 hours of the day. Some of the laboratories are now on three shifts, thus working twenty-four hours a day.

Special chairs, and equipment have been designed for field service so that proper emergency attention may be afforded those in combat. Collaboration with the Medical Supply Service, manufacturers and priority

agencies has enabled the Dental Corps to procure much equipment and supplies to conduct its professional service. The entire program has, however, given every consideration to the

the Medical Equipment Laboratory at Carlisle Barracks, Pennsylvania. This unit is to be used in the smaller posts of the Army in this country where a regular dental service is not available or practical.

The primary objective of the Dental Corps is to prepare the incoming selectees dentally for field service. It is necessary that optimum service be given to the greatest possible number of men during the interim permitted. It is further essential that each soldier delegated to field duty be free from all oral infection, and be able to masticate the Army ration. It also has a secondary mission in that it assists the Medical Corps in the care and exacuation of battle casualties. The plastic and maxillo-facial surgical procedures will in a large measure be delegated to the dentist, as well as, the many facial and oral reconstruction problems incident to the war. The training of large numbers of dental officers in field service and in tactical maneuvers at Carlisle Barracks has been in anticipation of such service. They are schooled to serve as auxiliary medical officers when the situation requires, and may be depended upon to render

valuable aid in that capacity. Duties of this character; particularly in the combat zone, where virtually no dentistry may be accomplished, consist of emergency treatment of wounded, supervising the collection of casualties and admissions to the forward echelon medical stations, and similar activities that the unit surgeon may request. In the event that the medical officers become incapacitated, the dental officer assumes their authority, responsibility and duties until properly relieved.

In addition to giving the necessary dental services in the home camps and stations the men are instructed in the proper care of the teeth and surrounding soft tissues. A large percentage of soldiers have had little, if any, dental experience in the past, and the officers are therefore delegated to creating a dental health consciousness in the minds of the men. The attitude of the average soldier concerning dentistry and dental service will be reflected in his life in subsequent years after the war. The opinions of the civilian of tomorrow will have a tremendous influence upon the general health of the nation for generations to come.

The administrative problems of the Dental Corps have been many and varied during this
(Continued on page 158)



Army Air Forces Photo
A toothache is a toothache, whether you are in the city, jungle, Arctic, or on the sea. Here an Army Dentist with the Air Force has his dental clinic set-up in a jungle background. Note the foot operated drill. Below: Brigadier General Mills.



needs of civilian dentists to the fullest extent possible under the existing conditions.

Another advancement is the new mobile operating unit which is now being developed at

Submarines in the War

(Continued from page 111)

any other activity. Whether it be attack, escape from anti-submarine measures, or repairs to damaged hull or machinery, it is strictly "on its own" and, being thousands of miles from its own forces, can expect no outside assistance. Submarine duty therefore tends to breed a sense of responsibility, initiative and resourcefulness. About twenty of our present day admirals have had experience in submarines. In addition to those now commanding submarine forces, Rear Admirals Daubin, English and Lockwood, the list includes such prominent names as Admirals E. J. King and C. W. Nimitz, Commanders in Chief of the U. S. and Pacific Fleets respectively. We had but a few submarines when these officers were serving in that branch of the service and consequently they constituted a minute percentage of the total officer personnel in the Navy at that time. That they now comprise such a large proportion of those to attain flag rank in wartime demonstrates the value of that early training.

Submarines are the only branch of any service able to operate continuously in enemy controlled waters. They maintain their offensive patrols for weeks and months and have prowled the seas in search of enemy from Alaska to Australia and the East Indies, and from the Mandated Islands to the Philippines and China coast. They have penetrated, literally, to the very doorstep of Japan where ships have actually been torpedoed in such close proximity to the beaches that the sinkings could be witnessed by observers ashore. They have even destroyed ships under the very guns of Japanese forts.

The potentialities of submarines are far from exhausted and there are many other tasks which they can accomplish besides their primary mission of attack. They can act as "eyes of the fleet" by reconnoitering enemy ports and can get information regarding ship movements that would be otherwise impossible to ob-

tain in many cases. As far back as World War I submarines were employed to evade blockade and carry cargo of great value. It was repeated again in this war when a submarine made a memorable voyage to besieged Corregidor and returned with tons of gold and securities before that fortress fell to the enemy.

For many years Japan has longed for the oils, metals, food and other material wealth of the countries which lay to the South. It now possesses these vital resources in abundance, but they are practically worthless unless they can be delivered to the factories and war industries in the homeland. Such deliveries in important quantities over the long lines of communication would be impossible had we sufficient fleet submarines to maintain one hundred or more constantly encircling her ports. Although the latest issue of *Janes Fighting Ships* lists well over one hundred U. S. submarines, it will be noted from this publication that less than half are suited to make the long cruises which successful operations against the Japs require. It is no military secret either that, of the total number available for this work, a certain number must be engaged in making the long trek to and from the Orient while others are in a refit or overhaul status prior to making another patrol. The exact number engaged in offensive action on station can not be divulged but it is quite obvious that they are only too few.

We have several million men in our armed forces but a small fraction of a percent of this total man our submarines. They have accounted for over a million tons of supply ships and combatant vessels of all types, they have disrupted enemy commerce and flow of essential war materials, they have compelled diversion of war ships to convoy duty, they have forced Japan to devote a considerable measure of manpower and industry to anti-submarine measures, and last, but not least, they have destroyed thousands of Japanese—all this without fanfare or publicity. The government's investment in this branch of the service has most certainly paid high dividends.



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2 FULL DOZEN 25¢**

Canada's War Effort

by

The Hon. Leighton Goldie McCarthy

Canadian Minister to the United States

SINCE September 10, 1939, when Canada entered the war, this peaceful, pastoral nation of 11,500,000 people has built its army to 89 times its prewar strength, multiplied its navy 27 times and its air force 38 times.

From a pre-war strength of 15 ships, the Royal Canadian Navy has been increased to a tough, battlewise force of nearly 500 vessels which patrol the North Atlantic a third of the way across and extend their hunt for searaiders as far south as the Caribbean.

In three years the Dominion has built an "airdrome of democracy" where young fliers of all nations are trained to fly the sky armadas of the United Nations and ultimately to blast the enemy in nearly every hole and hiding place in the five continents.

In the same period Canada has expanded her munitions industry like magic, to a point where war orders total nearly \$6,000,000,000, and Canada-produced weapons, including great naval guns, tanks, airplanes, small arms and ammunition are helping to blast the axis on all fronts.

Canada's vast agricultural resources have been thrown to the Allied Nations on a scale that guarantees wartime and post-war sustenance for the fighting free peoples of the world; in making both food and munitions available to Allies, the Dominion has extended extensive financial aid, including an outright gift of \$1,000,000,000 to Britain.

In the desperate struggle at Hong Kong, on the flaming beaches of Dieppe and in the glorious raid on North Africa, Canadians have played a permanent role.

Their precise numbers secret, many thousands of bronzed, toughened and highly trained Canadian soldiers are impatiently awaiting in Britain the Battle of Europe. In Great Britain there are three Infantry Divisions, one Armoured Division, and one Tank Brigade. A second Armoured Division and second Tank Brigade are now being sent to complete the Overseas Army.

Canadians at home are flocking to the vital war services and manning munitions factories in ever-increasing multitudes. There are 19,000 Canadian women in the three women's services and more than 200,000 Air Raid Precaution workers; a round million Canadians, 185,000 of them women, are now engaged in munitions production.

Despite these achievements, the Canadian War Effort goes on expanding daily in every branch and a steady progression of government restrictions, all calculated to intensify War Effort, extend to where Canadians may work, how much money they may earn, what they may eat, where they may travel, what they may buy and how much they may pay for goods.

With 600,000 of her people in the fighting

services, 1,000,000 engaged in some form of war production, 1,250,000 engaged on farms in vitally important food production, 300,000 in essential utilities and mining, and 2,000,000 remaining in Civilian Industries, Canada's man and womanpower resources are feeling the strain. A program of National Selective Service, which directs men and women into jobs where their services will be of greatest value to War Effort, is being launched. War Restrictions are hitting pocket books, the dinner table and denying old-time luxury living standards. Wages and salaries were fixed in the Canadian Economic Mobilization, and a system of bonus payments instituted to bring wages into line with war-



time living costs. Prices were frozen at December 1, 1941, to choke off a threat of inflation. Gasoline, sugar, coffee and tea have been rationed. Commodities such as rubber, tin and silk are being denied civilians. Production of automobiles, radios, washing machines, electrical appliances, are either curtailed or entirely eliminated. Wartime taxation upon Canadians has been raised with each successive budget and the exactions accepted without protest throughout the country. The objective in 1942-43 is for an expenditure of \$3,200,000,000 for the war, the equivalent of \$278 for each Canadian, and about twice the entire cost of the first Great War, to which Canada sent 600,000 of her fighting men.

Great energy and enthusiasm is being thrown into voluntary war organizations operating on the Home Front. More than \$52,000,000 has been contributed to more than

5,000 organizations in all parts of the country.

Not one of the largest or wealthiest of the United Nations, Canada is straining her finances to the last degree to be of the utmost aid to Her Allies. In the current fiscal year alone, the Dominion is spending almost twice as much as she spent on war plus demobilization from 1914 to 1920. She is spending \$9,000,000 a day on her War Effort, and for every dollar she spent in peacetime 1938 she is now spending \$100 for war.

Canada has planned her Wartime Economy so that no one can get rich out of the conflict. The tax on Excess Profits is 100 per cent, of which 20 per cent is refundable after the war, and a single Canadian earning \$500,000 a year has \$27,000 remaining after paying his Income Tax.

A tabulation of Canadian food products being sent Britain this year is as follows: 600,000,000 pounds of bacon and products; 125,000,000 pounds of cheese; 45,000,000 dozens of eggs; 31,480,000 one-pound tins of condensed milk, besides great quantities of wheat and flour, fish, dried fruits and vegetables.

We are not smug or complacent in Canada about what we have done, but we hope that our effort so far will be considered by our friends and allies as a not unworthy contribution for a nation of 11,500,000 people.

Canada's Part

by

J. L. Ralston

Minister of National Defense

"CANADA'S pattern of total war has three main parts. Each one is essential. The three are complimentary parts of the whole, and that is how they ought to be regarded.

"One of the three parts is the production of food; another is the production of weapons of war; and another is the raising of armed forces to combat on sea and on land and in the air. Supporting all these activities is the great civilian effort of this Dominion which expresses itself chiefly in the twin essentials of services and morale, and in which no Canadian is too old, too poor, or too humble, to have a place and a duty.

"So that, put in briefest form our pattern of total war is a pattern consisting of food, weapons, and armed forces. You cannot take one and leave the others in a country like Canada and the duty of the government is to recognize that each of these three parts—food, weapons, and armed forces—is essential to the total war by Canada."



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The Coast Artillery Today

(Continued from page 148)

Coast Artillery Board.

In the separation of functions, the Commanding General, Army Ground Forces, retained direction of the responsibilities for the seacoast artillery which include the development of tactical and training doctrine, tables of organization, tables of basic allowances, military characteristics of weapons, and requisite changes in equipment for the Seacoast Artillery.

The professional education of enlisted men and officers for Seacoast Artillery and Submarine Mining is carried out at the Coast Artillery School at Monroe. Under the control of the Commanding General, Army Ground Forces, the Coast Artillery School prepares training material on the latest tactical and technical subjects through the mediums of field and technical manuals, training bulletins, training films, and film strips. The School, through its Officer Candidate Course, continues to prepare student officers for commissions and, through the Enlisted Specialists Department, trains enlisted men as specialists in seacoast artillery.

The Coast Artillery Board has for its purpose the consideration of such subjects pertaining to seacoast artillery as may be referred to it by the Commanding General, Army Ground Forces, and to originate and submit recommendations for improvement of the Coast Artillery Corps. The Board makes tests and recommends modification in new equipment, and ideas sent in from men in the field. The Board also issues fire control charts and scales as needed by field units.

In the reorganization of last winter, the antiaircraft functions of the Coast Artillery Corps, except control of units assigned to the field forces, were placed under the Commanding General of the Antiaircraft Artillery Command, with station at Richmond, Virginia. The Commanding General, Antiaircraft Artillery Command, submits his recommendations as to basic allowances, and tactical and training doctrine of the antiaircraft artillery to the Commanding General of the Army Ground Forces. The Antiaircraft Artillery Command includes also the control and supervision of the barrage balloon activities except for units assigned to the field forces. The Antiaircraft Artillery School and the Antiaircraft Artillery Board are now located at Camp Davis, North Carolina. The Barrage Balloon School and the Barrage Balloon Board are located at Camp Tyson, Tennessee. The functions of these schools and boards are similar to those of the Coast Artillery School and Board at Fort Monroe, Virginia.

Certain sections, formerly in the Office, Chief of Coast Artillery, have been transferred to the Services of Supply and are now centered in a Coast Artillery Advisory Committee in the Office of the Chief of Engineers. This committee gives tactical and technical advice and assistance on matters pertaining to the preparation and accomplishment of seacoast defense projects.

The coordination of the training and handling of replacements for seacoast artillery units has become the responsibility of the Replacement and School Command of the Army Ground Forces at Birmingham, Alabama. The Coast Artillery (SC) Replacement and Training Center is located at Camp McQuaide, California and is under the command of Brig. General Frank S. Clark, formerly Commandant of the Coast Artillery School. Replacement training centers for antiaircraft artillery units are located at

Fort Eustis, Virginia; Camp Wallace, Texas; and Camp Callan, California. Coast Artillery units that have completed their training and have been assigned to harbor defenses or to other tactical combat units are integral parts of higher active commands.

Regardless of his duties or the chain of command under which he functions, the wearer of the crossed cannons and projectile insignia, more than ever, commands the respect of his fellow man. Nothing more is needed but to repeat the title of our Coast Artillery Corps march, "CRASH ON! ARTILLERY," and to read General Orders No. 62, which appears below.

General Orders No. 62

November 7, 1942.

Awards of Distinguished - Service Medal.—By direction of the President, under the provisions of the act of Congress approved July 9, 1918 (Bull. 43, W. D., 1918), a Distinguished-Service Medal was awarded by the War Department to the following-named officer:

George F. Moore, major general, United States Army. For exceptionally meritorious service to the Government in a duty of great responsibility as commander of the Harbor Defenses of Manila and Subic Bays from December 8, 1941 to March 11, 1942. The outbreak of hostilities found his command prepared and on the alert. The controlled mine fields covering the north channel at the entrance to Manila Bay were effectively installed and these, as well as the Navy mine field protecting the south channel, were covered by the guns of the seaward defenses. The antiaircraft batteries engaged the enemy effectively throughout sustained and repeated high-level and dive-bombing attacks, maintaining an extremely high percentage of destroyed and damaged hostile aircraft. Seacoast batteries repeatedly engaged land targets on the Cavite shore of Manila Bay and on the west coast of Bataan. By daily personal visits to the most heavily engaged elements, General Moore largely influenced the effective action and high morale of his command. Entered military service from Texas.

Chemical Warfare Service

(Continued from page 150)

established the Chemical Warfare Service as a component part of our Regular Army in 1920.

The Chemical Warfare Service is charged specifically with research and development for both offensive and defensive purposes, the production of chemical warfare materiel and protective devices, the training of personnel and the operation of chemical troops. Such a diversified program presented a challenge to the officers and men of the Chemical Warfare Service during the peacetime years between the first world war and the present conflict. In my opinion the Chemical Warfare Service has met that challenge.

At first the going was hard. Despite the experience of the last war, the Chemical Warfare Service received little recognition in the intervening years of peace. Scanty appropriations limited the activities for many years. Even after the Italians had used gas against the Ethiopians in 1936 our Service failed to receive full appropriations and personnel to adequately perform its functions. Then came our own national emergency. The Chemical Warfare Service had to expand almost overnight.

At the beginning of the national emergency the available supply of gas masks for our Army was woefully inadequate. However, the quality of the gas masks which we had issued was excellent, equaling or exceeding the efficiency of any other military masks in the world. This achievement by our Research and Development Division coupled with a foresighted program organized by our Procurement Planning Division made it possible for us to get into production without delay.

These factors, together with the magnificent cooperation of American Indus-

try enabled us to provide a gas mask to each soldier as soon as he was inducted into the Army. The Chemical Warfare Service is proud of that record! We now have millions of masks in reserve ready for issue to our troops.

The Chemical Warfare Service Arsenal at Edgewood, constructed during the first world war and maintained in a standby condition during the peacetime years, was put on a war basis long before the Pearl Harbor attack. Buildings were renovated, new construction started and production facilities were increased at Edgewood as soon as the national emergency arose. Sites were chosen for additional facilities at strategic locations which combined nearness to sources of raw materials, adequate power and transportation facilities, and freedom from possible air attack.

The new Arsenals at Huntsville, Alabama, Pine Bluff, Arkansas, and Denver, Colorado, provide production facilities adequate for the prosecution of a global war. The Dugway Proving Ground, located in the Utah Desert, far from populated cities, makes it possible to carry out tests under ideal conditions.

The Development Laboratory at the Massachusetts Institute of Technology and the Chemical Warfare Service Laboratories at Columbia University supplement the work of our Technical Division at Edgewood.

In addition to these facilities the collaboration of the National Defense Research Council has proved invaluable. More than one hundred of the country's leading scientists are engaged in confidential research problems at various colleges and universities scattered throughout the country.

Many responsibilities have been added to this Service. In July, 1941, the incendiary bomb program was transferred from the Ordnance Department to the Chemical Warfare Service. The part which incendiaries play in modern warfare became evident to everyone following the tremendous air attacks on London and other English cities during the winter of 1940-41. Many thousands of incendiary bombs were dropped by the German planes during a single night attack. Besides the development of new types of incendiary bombs, our Service had to solve difficult problems connected with the supply of materials and the manufacture of unfamiliar items in prodigious quantities. In addition haste was imperative!

The Chemical Warfare Service met this challenge as borne out by the testimony of General Doolittle, who obtained such satisfactory results with our incendiary bombs in his attacks on Tokyo and other Japanese cities. Today we have magazines stock with millions of various types of incendiary bombs ready for delivery to our armed forces.

The increasing use of obscuring smoke in modern warfare places an important responsibility upon this branch of the service. Increased fire power of modern weapons makes it difficult for an attacking force to come to grips with the enemy. The generous use of harmless obscuring smoke not only makes it possible for an attacking troop to advance across open terrain but it also provides a protective blanket for slower movements such as river crossings.

Many thousands of casualties will doubtless be avoided by our troops in the battles yet to come through the use of smoke. Our Service is charged not only with the production of suitable smoke munitions but also with the operation of troops whose specialty is the firing of smoke.

Thus we have assumed the responsibility of providing instruction to all of the armed forces of our country in chemical warfare. In addition we have established seven civilian protection schools, located at colleges and universities, for training leaders in methods of civilian protection.

The civilians who complete the course at one of these schools are expected to teach civil defense workers in their home communities.

To recapitulate, the Chemical Warfare Service is charged with research, production, training and combat functions. I believe we are carrying out our mission.

The Finance Department

(Continued from page 152)

for their financial welfare while the officers and men may be serving at distant posts. Legislation has been secured to permit continuance of allotments when military personnel is missing in action or beleaguered or besieged by the enemy. A family allowance bill has been passed by Congress, and disbursements, as provided therein, are being made by the Finance Department.

The Chief of Finance, with the approval of the Secretary of War, has established a system by which all members of the Military Establishment, officers, enlisted men and civilians, may purchase War Bonds by reservations from their pay. Service Command and similar commanders have been made responsible for the dissemination of the necessary information to all personnel within the geographical limits of their commands. In Washington a new division has been established in the Office of the Chief of Finance to coordinate operations in the field and to handle the financial and accounting procedures incident to the program.

The Army Dentist

(Continued from page 154)

emergency. It is a responsibility requiring a complete understanding of its mission, its relationship to Medical Department activities as a whole and the problems encountered in the fulfillment of its duties. It is organizationally and technically vested in the Medical Corps. In practice, however, this has been regularly accomplished by designated members of the Dental Corps acting in their capacity as advisors to the surgeon and, with his approval, exercising the functions of supervision, coordination and administration of the specific duties of the Dental Corps.

The transition from a civilian dental practice to the routine requirements of the Army has necessitated special instruction on the part of many officers and enlisted personnel. The establishment of the Army Dental School in Washington, D. C., in 1921 was an early step in the training program. It has provided courses of instruction in professional procedures, and practically all members of the Regular Army Dental Corps have taken one or more periods of instruction there. Hundreds of enlisted men have also been taught the duties of the dental and X-ray technicians.

The Medical Field Service School at Carlisle Barracks, Pennsylvania, established in 1921, has also afforded regular schedules of field training. Further, extension courses in dental administration prepared and conducted by the medical field service school, have added greatly to the knowledge and usefulness of dental officers.

The Reserve Officers from time to time too have been assigned to active duty for periods of fourteen days or longer. Many have served on extended active duty with Civilian Conservation Corps Units in the period from 1934 to the declaration of war.

Army dental internships have also been afforded to a limited number of recent graduates from dental schools. Such internships permit a year's post graduate study in the Army Dental Schools and associate centers in preparation for a tenure of service with the Army.

In addition to the above cited program, one month courses in maxillo-facial surgery and procedures have been instituted at the Army Dental School, Army Medical Center, Washington, D. C. General Hospitals and large Station Hospitals have conducted scheduled classes for dental personnel, both commissioned and enlisted.

The Dental Corps is encouraged and enthused with the response received at every hand by the officers and enlisted personnel of every component within the armed forces. It is cognizant of its multiple problems and shall extend every effort through organization and training to accomplish its mission.

Additional copies of this "United States at War" may be obtained from your Post Exchange, Ship's Service Store, local agency of the American News Company, local book dealer or ordered direct from the ARMY AND NAVY JOURNAL, 1711 Connecticut Avenue Northwest, Washington, D. C.

Price \$3.00 per copy.

The Operation of the Judge Advocate General's Department

(Continued from page 126)

ble to an army, punishments must be imposed for crimes and military offenses, and the imposition of punishment must be prompt, certain, uniform as between offenses of like degree, and neither too light nor too severe. Punishment must not be inflicted upon the innocent nor must the guilty escape. If the disciplinary system seriously fails in any of these respects, the Army's efficiency will be much diminished. The internal administration of the Army, the enlistment, induction, commissioning, transfer, promotion, retirement, and discharge of Army personnel, are all regulated by and must be conducted in accordance with law. The same is true of its external business relations, such as its contracts for the purchases of supplies and construction of buildings. These external relations are of enormous magnitude and complexity. There are many claims, some of them for large sums, by and against the Army, and much litigation in which it is concerned. The Army is vitally interested in hundreds of patent matters. It controls a great many reservations covering all together millions of acres of land. Questions are constantly arising, with respect to these lands, as to titles, rights of way, and boundaries. The work of the Engineer Corps of the Army in improving rivers and harbors and in building and operating canals involves many legal questions. The relations between the Army and the governments of our own states, territories, and cities must be managed in accordance with law. Since the day of the attack upon Pearl Harbor, the Army has controlled the government of Hawaii under martial law. The declaration of restricted and prohibited zones, the control and evacuation of actually

or potentially dangerous persons, and the custody of prisoners of war and civilian internees raise many legal questions. The presence of our troops in many friendly foreign countries and the conduct of joint operations with our allies raise questions of international law. Even combat operations must be planned and carried out in accordance with the Hague and Geneva Conventions and the rules of land warfare. Finally, when we invade and occupy enemy territory, the military government to be set up there must be planned and conducted in accordance with law. For all these numerous and important tasks, lawyers are necessary.

How does the Judge Advocate General's Department discharge these responsibilities? Before the declaration of a national emergency it consisted of 105 Regular officers, headed by The Judge Advocate General with the rank of major general, about 550 Reserve officers, and a much smaller number of National Guard officers. Then the allotment of Regular officers was increased to 115, all the National Guard officers were called into service with the divisions to which they were assigned, and the Reserve officers were called as needed. These sources of supply were exhausted last spring, and since then many persons have been commissioned in the department who were previously officers of other branches, enlisted men, or civilians. At the moment of writing the department consists of 826 officers. The Judge Advocate General with the rank of major general, four temporary brigadier generals, and others in rank from colonel to second lieutenant. All these are lawyers by profession. Their number will of course increase as the Army increases. There are a number of warrant officers assigned to the department, many of whom have now been commissioned. The department contains no enlisted men, though men of other branches are often detailed to duty in its offices as clerks and otherwise.

The Army may be compared to a corporation whose operations extend over a

large area, such as the Southern Pacific Railroad, the Ford Motor Company, or the Pan American Airways, though it is now much larger than any of them. Every one knows that such a corporation needs and has a general counsel with assistants at its main office, and division counsel at various other places where it operates. The Army does the like. The Judge Advocate General is the general counsel of the Army, with station at Washington, where he has a considerable number of officers under him. There is also a judge advocate, usually with one or more assistants, at the headquarters of every division, corps, army, service command, territorial department, every overseas force or base of importance, and in many other units and places where particularly needed. In all there are 326 commands or stations at which one or more judge advocates are now serving.

The Judge Advocate General's Department, like other staff departments, exists in order to assist the rest of the Army, in particular the combatant arms, the better to perform its duties. It furnishes a particular professional skill for that purpose, as does the Medical Department. But the most valuable services of a physician are rendered in preventing disease rather than in curing it; and, if the call for his services is too long delayed, the disease may have become incurable. Similarly, a lawyer's services are more valuable in preventing his client from getting into trouble than in getting him out; and, if the call is too long delayed, he may be unable to extricate his client. Though Army personnel untrained in the law can not be expected to solve legal problems and should not attempt to do so, they should recognize such a problem when they meet it in the course of their duties and should make timely request of the judge advocate of the command in which they are serving for his advice and assistance.

The Judge Advocate General's Department has no reason for existence or purpose except to put the professional skill

of its members at the service of the rest of the Army. That is their duty and is their pleasure.

Wartime Tasks of the U. S. Public Health Service

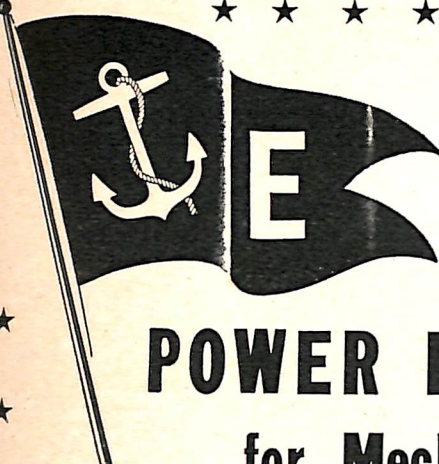
(Continued from page 132)

clude arsenals, airplane and munition plants. A doctor and engineer of the Service have been assigned to the Office of Ordnance of the War Department. Their task is to follow through on compliance with recommendations resulting from these industrial hygiene surveys.

Scientific research in the Public Health Service has also been geared to the demands of war. The National Institute of Health, research arm of the Service, is carrying on many confidential studies, at the request of the War and Navy Departments and the National Research Council. Upwards of 100 projects are directed toward health hazards in the war industries. The Institute also certifies the manufacture of typhus vaccine used by the armed forces and manufactures yellow fever vaccine for the Army. Laboratories where blood plasma is processed for military and civilian use are also certified by the National Institute of Health.

Prominent in the assistance given by the Public Health Service to the health measures of other war agencies, has been its active role in the Emergency Medical Service of the Office of Civilian Defense, and its contribution to the National Nutrition Program.

All these special wartime tasks are part of the total rearguard action which the Public Health Service and hundreds of State and local agencies are fighting against disease and preventable deaths. Their objective is to see that our military forces are given all possible cooperation and are supported by a healthy, vigorous civilian army.



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We Understand War

(Continued from page 134)

unable to convert to war work, were forced to shut their doors for the duration, perhaps forever. We saw automobile dealers and other distributors of civilian goods go out of business. We tried to help them with every means at our disposal. We called their plight to the attention of the authorities in Washington. Individual cases of distress among non-war business concerns are being given individual attention through the National Chamber's service facilities. But we did not go to Congress and ask that they be subsidized or otherwise given special treatment by the government.

We saw regulations and orders issued from Washington, directed in almost every instance to some form of control over the operations of business and industry. Never once have we complained that the rights of business were being usurped. Rather have we assisted the government, wherever and whenever possible, in the orderly administration of its wartime rules and regulations. This we will continue to do.

We know full well that we will return to our traditional principles of freedom with the return of peace. The people will see to that. "Governments derive their just powers from the consent of the governed." So it has been in America for 166 years; so it will continue to be. But in time of war we must modify our principles. Swift decisions are necessary to speed the war effort and save lives. Total war demands that there be soldiers of the home front as well as soldiers of the battlefield.

The United States Chamber of Commerce does not intend, however, to sit supinely by if we see errors in the planning or administration of the war effort. The stake of our membership in the security of the United States is as great or greater than that of any group or groups in the country.

I want to stress the fact that the National Chamber consistently has championed the cause of freedom—freedom of the individual as well as enterprise. We will continue to champion the cause of freedom, the basic principles for which the nation fights. And under freedom we have a right to criticize constructively. We have more than a right; we have a duty to question any action or lack of action which we consider detrimental to the prosecution of the war effort. For the record, I want to add this promise: Any criticism coming from the National Chamber will be constructive; its sole purpose a contribution to the winning of the war.

The government's organization of the war effort on the production front has lately met with sharp public criticism. Chief complaints have been that there is confusion and wasteful overlapping in the functions of federal war agencies; that political considerations have interfered with the enactment and administration of measures designed to control the upward sweep of inflation, and that the allocation of materials used both for war and civilian production has been badly mishandled.

Some of these complaints are valid—many are not. I should like to recommend that we look with a degree of tolerance upon the government's truly epic efforts to organize and speed production and to harness our economic forces.

We must remember that we started our production effort virtually from scratch. And, as Donald Nelson has reported, production has increased 350 per cent since Pearl Harbor. In other words, in less than a year American industry has increased its average productive output of guns, ships, tanks and planes three and one-half times. Such a great acceleration in the rate of war production, exceeding all expectations, has placed a tremendous strain upon those charged with the immensely complex task of administering the war effort on the home front.

Mr. Nelson said that the increase in the rate of production since Pearl Harbor is good—but not good enough. American industry agrees with Mr. Nelson. Even though the managers and technicians and workers of industry have toiled night and day, have invented new

processes to speed production, and consequently are building weapons of war better and faster than our enemies can produce them, we agree that "it is not good enough." It will never be good enough so long as a Jap, a German, or an Italian raises a gun against a soldier, sailor or airman of the United Nations.

The only thing that can defeat America is disunity. The only thing which can slow down production or impede the organization of our economic forces for maximum efficiency in the prosecution of the war effort is disunity. Unity will hasten victory, and the National Chamber recognizes the pressing need for a completely united home front.

The National Chamber has worked and continues to work for harmony with labor, agriculture and government. The men on the fighting fronts must and will be supported by a home front whose every thought is with them.

When I came to Washington upon my election as president of the United States Chamber of Commerce last April, I immediately called upon and was cordially received by the leaders of our great national labor organizations; I talked also with agricultural leaders and with men high in government, men responsible for the direction of the war effort.

Since that time, we have come to know one another as friends rather than as strangers. We have found that the other fellow doesn't wear horns. And we have discovered that our areas of agreement are much broader than our points of disagreement.

We are all working and fighting for the same objectives—for a world where free men can live in peace, for the well-being of ourselves and our fellow man, for a progressive and virile democracy.

A full-fledged unity of our economic forces is fast being realized. I cannot give the details at this time, but plans are underway for a unity of action as well as words. And I can assure you that Hitler and Hirohito are sadly mistaken and very bad judges of the American character if they think a united economic front is not possible in the United States.

And our enemies are mistaken, indeed, if they cannot foresee the inevitable outcome of the world-wide conflagration which they started and which we will finish. For . . . We understand war!

Field Artillery

(Continued from page 136)

Since the artillery is a supporting arm, it must know the situation and needs of the supported arm. In order that an artillery commander may know how to employ his units properly to furnish the needed support, close intimate liaison is established with the supported arm. American artillery has made great strides in successful liaison. Radio communication, important everywhere, has served a great purpose in artillery liaison. It has solved the increasing problem of contact with other mobile units. The new and improved radio sets have made it possible for supporting and supported commanders to know the plans and capabilities of each other. Higher and lower units have been brought in close coordination by liaison, much of it dependent entirely upon radio. In support of armored forces, radio is the primary means of communication for artillery. In other actions of rapid movement artillery depends upon radio for the early opening of fire. All other available means of communication are established as the situation permits.

The Field Artillery has long felt the need of a "flying observation post." That need has been supplied by the assignment of organic, slow-flying airplanes. These liaison-type planes, commonly known as "grasshoppers," are manned by artillerymen. They enable artillery observers to locate targets concealed from ground observation and to bring prompt fire upon these targets. The planes are able to operate from small, unimproved fields in the immediate vicinity of the battalion position. The low landing speed of the planes makes it possible for them to land on short, cleared strips or roads. As pilot and observer are members of the artillery battalion, they are constantly available when needed; they are familiar both with

the local situation and with the tactics and technique of artillery. As they work day after day with the firing members of the team on the ground, they become accustomed to the play of that team and are able to work in complete harmony with the personnel handling the fire. They are designed as an elevated observation post, and normally fly only over our own troops.

For long range artillery missions, Field Artillery depends upon air force personnel for observation over the target, as they can operate with high-speed, armed aircraft over enemy territory. Mutual knowledge of firing methods, characteristics and abilities of the weapons and aircraft is necessary to accomplish successfully these long range missions. Air forces and Field Artillery have the common mission of supporting other arms, therefore they must be closely coordinated to achieve maximum effect.

Field Artillery is an arm of close support. Perhaps more than any arm it is conscious of the need for complete coordination among the various components of the Army. Its role in this great war is a supporting role, not an individual one. At the Field Artillery School where thousands of young officers are trained and more experienced officers given advanced courses in the most improved methods of artillery, the field artilleryman is constantly told that we all are part of one Army, and that we exist solely to support the other arms. That vital principle is taught in every artillery unit in the service. Every artilleryman is striving to give his brother arms the same efficient support as did the gunners of Bataan.

The Electrical Distributor

(Continued from page 140)

distributor's office for price and delivery information on an order of 57 items at 3:30 one afternoon and at 4:30 received the information. An order with a priority was immediately put through, and all the required items arrived in a solid truck load at 10:00 the next morning.

Too many people, who do not know the facts, are ready and willing to speak on the subject of the wholesaler's place in the war effort. Above are the facts; each and every one of them can be verified by talking to the men who handle electrical problems for the Army, Navy, and many other Government departments, by asking the manufacturers who are producing war goods, and by questioning the architects, electrical engineers, and contractors who plan and install electrical equipment.

U. S. Cavalry Today

(Continued from page 142)

man and horse units can leave the road and its vicinity with much greater speed than the dismounted man or units; horse units can march on roads or move cross-country dispersed so as to present unremunerative targets to air.

These jobs prescribed for U. S. Cavalry which have dictated its present organization, equipment, and training, demand versatility. Horse and mechanized Cavalry must be able to go where others cannot; must have the means to move with the speed of the fastest enemy ground vehicle. It must be and is able to communicate with our own supporting or cooperating air units, with other units and headquarters, nearby or at great distances. Our Cavalry today, both types, is expected to, and is equipped and trained to be able to go deep into enemy territory by stealth or by fighting its way if required, either on foot, on horses, or in vehicles. It is able to establish obstacles; to overcome or destroy enemy obstacles; it is able to build or blow up a bridge; it is able to cross streams when there is no bridge nor means to construct it—to take animals, vehicles, and weapons across. Your U. S. Cavalry of today is equipped and trained to do these jobs, as their recent battle rehearsals in the field have so strikingly demonstrated.

And whether the Cavalryman moves on a horse or in a vehicle, he must be able to fight as his team mate, the Infantry soldier; he must be able to fight on the plains

or the mountains, in woods or in villages. So, in addition to a horse or a vehicle, your Cavalryman has most of the weapons and equipment that the Infantry has, and several special items in addition.

All of this demands versatile individuals—whether buck privates, noncommissioned or commissioned officers; requires individuals and units capable of performing at speed any of the varied jobs expected of Cavalry. And be assured that your U. S. Cavalry is equipped and trained as never before to perform its designated battle missions as a member of the combined arms team. Recent maneuvers in this country have demonstrated to our higher commanders the tremendous versatility and value of our Cavalry units today.

And, if there remain any "Doubting Thomases," let them look at the imperishable pages of glorious history written in a few short weeks in northern and central Luzon and Bataan by the 26th Cavalry! There you have a preview of the performance our higher commanders and the Nation may expect of their Cavalry today and an heroic example which every U. S. Cavalryman can and will emulate on the future battlefields of this war.

The motto on the coat of arms of the Cavalry School translated proclaims—"We Conquer by Mobility!" Today, with its tactics, equipment, and weapons incorporating the latest lessons of the present conflict, a new motto of U. S. Cavalry may confidently be inscribed on its coat of arms—"By Versatility and Mobility we Conquer!"

Manufacturing Miracles

(Continued from page 144)

use them. In a war of machines it is of course essential to maintain all mechanical equipment at peak performance.

Industry's main task, from here on to final victory, is principally a question of expanding still further the production of the war materials and supplies of all kinds, of feeding and maintaining the vast number of machine tools that are doing the job, and of keeping up the health and stamina of the men and women who run them. This includes turning out the ships that will solve the problem of transportation of men and munitions and supplies. The weapons that roll off America's assembly lines must keep right on rolling into the camps of the enemy. American industry is determined to see that what the American Army and Navy need is produced so soon, so well, and in such great quantities that the enemies of freedom will be overcome.

This nation is fighting essentially for freedom. The management of industry knows what industry owes, what the nation owes, to the freedom maintained now for more than a century and a half. And it has realized that to preserve that freedom, to meet the demands of the present emergency, it must make sacrifices—even give up temporarily much of freedom itself—along with every person and group among us.

Industry has expressed willingness to abide by this necessity. It has practiced what it has preached. It has pledged itself not to profiteer. It has kept that pledge. An NAM study of profits of some 2,800 companies proves this fact conclusively. And out of industry comes a large part of the government revenue that provides the sinews of war. Industrial management has recommended the heaviest taxes that industry can stand.

Indeed the industries of America have asked only to retain after taxes about 2.7 per cent of their total receipts, in order to maintain present operations and to continue the expansion necessary to win the war, to pay minimum dividends to investors and to set up protective reserves. They would keep only the means for making the tremendous adjustment to peace. They wish to do as great a job in post-war production and employment as they are doing in this war period.

For the American people want to have after the war what they are fighting for now—freedom to use their initiative and energy and productivity in their various enterprises to keep this a land of opportunity and to reach new levels of national well-being.

The March of Freedom for the Common Man

(Continued from page 18)

superior and that all other races or classes are supposed to be slaves. The belief in one Satan-inspired Fuehrer, with his Quislings, his Lavals, and his Mussolinis—his "gauleiters" in every nation in the world—is the last and ultimate darkness. Is there any hell hotter than that of being a Quisling, unless it is that of being a Laval or a Mussolini?

In a twisted sense, there is something almost great in the figure of the Supreme Devil operating through a human form, in a Hitler who has the daring to spit straight into the eye of God and man. But the Nazi system has a heroic position for only one leader. By definition only one person is allowed to retain full sovereignty over his own soul. All the rest are stooges—they are stooges who have been mentally and politically degraded, and who feel that they can get square with the world only by mentally and politically degrading other people. These stooges are really psychopathic cases. Satan has turned loose upon us the insane.

The march of freedom of the past 150 years has been a long-drawn-out people's revolution. In this Great Revolution of the people, there were the American Revolution of 1775, the French Revolution of 1792, the Latin-American revolutions of the Bolivarian era, the German revolution of 1848, and the Russian Revolution of 1917. Each spoke for the common man in terms of blood on the battlefield. Some went to excess. But the significant thing is that the people groped their way to the light. More of them learned to think and work together.

The people's revolution aims at peace and not at violence, but if the rights of the common man are attacked, it unleashes the ferocity of a she-bear who has lost a cub. When the Nazi psychologists tell their Master Hitler that we in the United States may be able to produce hundreds of thousands of planes, but that we

have no will to fight, they are only fooling themselves and him. The truth is that when the rights of the American people are transgressed, as those rights have been transgressed, the American people will fight with a relentless fury which will drive the ancient Teutonic gods back cowering into their caves. The Götterdämmerung has come for Odin and his crew.

The United States Coast Guard in the War

(Continued from page 42)

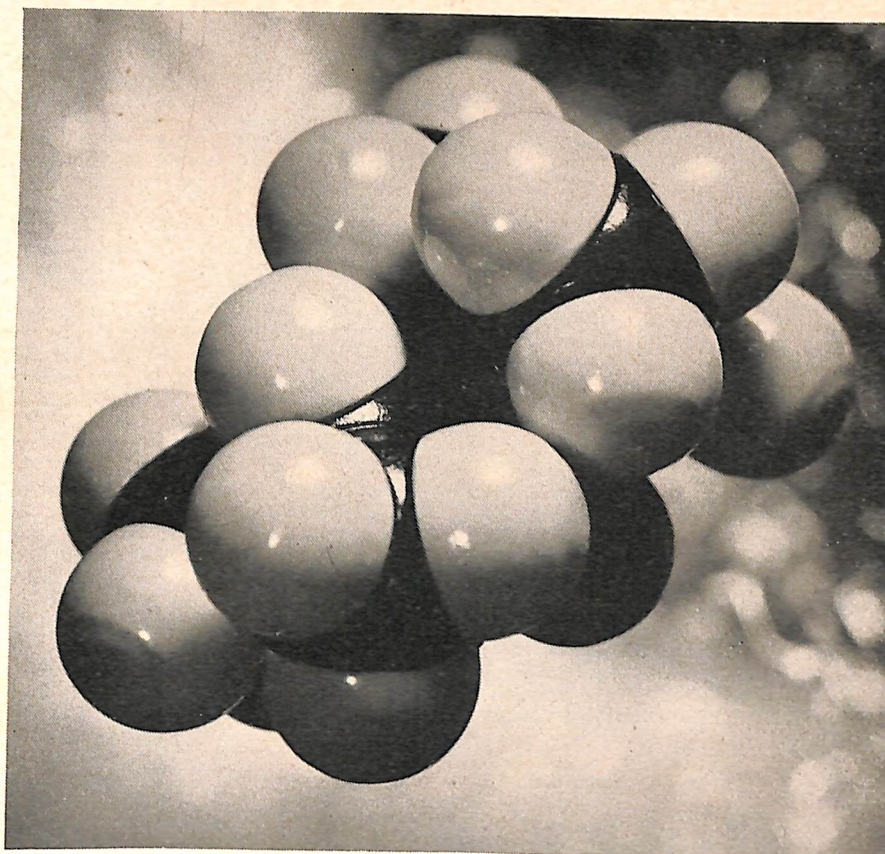
anti-submarine patrol. Service personnel are manning transports and auxiliaries for the Navy and some of them have been killed fighting alongside of Marines. The entire Coast Guard is operating on a war basis and the Service is definitely in the war.

Petroleum and the War Effort

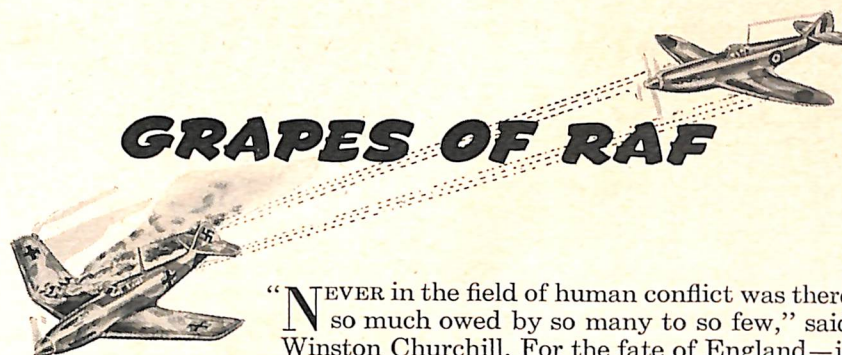
(Continued from page 51)

however, that reserves of petroleum fuels and lubricants have become so reduced in Germany as to greatly hamper its war effort and that the massive war machine of the German army is beginning to squeak and break down, seems to be more apparent with each day's reports from the fighting fronts. No longer do we hear of submarines in the Gulf of Mexico and western Atlantic, nor of mass air raids on the British Isles and the lack of a large German-Italian air force in Africa all seem to point to a definite shortage in petroleum lubricants and fuel supplies rather than to a lack of planes or submarines.

It is, therefore, my opinion that now the German high command has been forced to decide whether diesel oil shall be used in submarines or tanks and whether gasoline supplies should be used in planes or in trucks and cars. Time must, inevitably, make these decisions more and more important and the side which controls most of the earth's black blood—petroleum—must win in the end.



GRAPES OF RAF



"NEVER in the field of human conflict was there so much owed by so many to so few," said Winston Churchill. For the fate of England—if not the whole world—was determined by the men of the Royal Air Force between August 8 and October 31, 1940, when they turned back the Luftwaffe in the Battle of Britain.

As the records of that epochal struggle are revealed, we learn more and more of the gallant sacrifices made, the courageous deeds performed, during those eighty-five days of furious fighting. We learn, too, of the little details that sometimes play a part in deciding the fate of nations.

One of those "little" things is pictured above.

It is a molecule of an ingredient in the gasoline that helped the RAF win the Battle of Britain. It is called iso-octane. The atoms of hydrogen and carbon which form iso-octane hang closely together like a bunch of grapes, as shown in the chemist's model above.

Maybe that peculiar bunching of the atoms is the reason why iso-octane has such a high antiknock quality that years ago it was considered "perfect" and was adopted as the scale for measuring the antiknock quality of gasoline. Possibly iso-octane's remarkably high antiknock quality is due to some other reason.

Whatever the reason, this clear-cut superiority over ordinary gasoline was enough to start the research laboratories of the American petroleum industry working, developing manufacturing processes that changed iso-octane from a forty-dollar-a-gallon curiosity to a twenty-cent-a-gallon ingredient of aviation fuel for the planes of the United Nations.

The Battle of Britain might have been won without iso-octane. We cannot say. All we know is that the British had it for their fighting fuel in quantity—the Germans did not. For that we are indebted to the peacetime research and developments of American oil refiners.

This development of iso-octane has been only one of countless chemical achievements of petroleum technology in the long search for better fuels. Ethyl fluid is another of those achievements. It, too, is a prime ingredient in the fighting fuels that power the planes and mechanized armies of the United Nations.

A salute to the Armed Forces

...from an industrial fighter

He's in the Army . . . in the Navy . . . in the Air Force . . . and with the Marines.

You'll find him roaring into battle in speedy new tanks. Or helping direct field maneuvers from Signal Corps' communication trailers. Or racing through the water in trim, swift fighting craft.

You'll find him in camps and shipyards, trucks and factory production lines, and munitions plants . . . in fact, wherever America's great fighting line extends. For "he" is the familiar Masonite* Man—symbol of Presdwood* products, "The Wonder Woods of a Thousand Uses."

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MASONITE
PRESWOOD PRODUCTS

MASONITE CORPORATION, 111 West Washington Street, Chicago, Illinois

ETHYL CORPORATION
Chrysler Building, New York City

Manufacturers of Ethyl fluid, used by oil refiners to improve the antiknock quality of aviation and motor gasoline.



Special Services to the American Soldier

(Continued from page 106)

youthful energy.

The largest motion-picture chain in the nation, for the entertainment of men in camps and overseas.

A facilities program which has been instrumental in the design of and equipping of more than 10,000 recreational buildings of various types.

Educational service and materials, to supplement Army training and to broaden the experience and capacities of the soldier by making available to him a wide range of correspondence instruction, to fit him for advancement.

A comprehensive library service for recreational and educational reading.

A program of professional and amateur theatrical entertainment, in cooperation with USO-Camp Shows, Inc.

Soldier-participation music and art programs.

A research service to aid Special Service in directing its programs, and to aid the general and field staffs in measuring problems concerning the broad welfare of men.

An informational and orientation service to inform the citizen soldier in the background and conduct of the war; utilizing radio, motion pictures, and the written and illustrated word.

Publication of the all-Army Newspaper Yank; advice to and supervision of more than 500 soldier newspapers in camps and units; publication of a monthly magazine to inform officers in the field concerning Special Service programs and activities.

A welfare service to assist and advise enlisted men and their families in economic matters.

The training and instruction of adequate personnel to carry out these programs in a sound way.

Maintenance of close liaison with other branches and divisions of the Army and with civilian and governmental agencies concerned with the welfare of the citizen soldier, as the American Red Cross, United Service Organizations, Inc., and the Federal Security Agency.

This brief summary would not be complete without acknowledgement of the valuable assistance and advice of the Joint Army and Navy Committee on Welfare and Recreation, a body set up by the Secretaries of War and Navy at the request of the President, to facilitate and coordinate Army, Navy, governmental, and civilian programs relating to the well being and efficiency of the enlisted man.

The General Board of the Navy

(Continued from page 36)

need resulted in the creation of the General Board.

George Dewey, Admiral of the Navy, was appointed president of the original Board and retained that position until his death in 1917. There has never been a president of the Board since, the senior member being designated Chairman.

The purpose of the General Board, as stated in the creating order, was

"to insure efficient preparation of the fleet in case of war and for the naval defense of the coast."

With the establishment of the Office of Naval Operations in 1915, however, planning and operational functions were placed under that office and the General Board became a purely advisory body to the Secretary of the Navy. It retains that status, having neither executive nor administrative powers.

The general function of the Board is to advise the Secretary on any matter that he may direct. In view of the diversified character of the Navy and its many and varied interests, matters referred to the Board naturally cover a wide range of subjects. Additionally and specifically, it is charged with the consideration of naval policy, that is, the system of principles, and the general terms of their application, governing the development, organization, maintenance, training and operation of the Navy; the naval building program to provide the

number and types of ships and aircraft proper to constitute the fleet; the military characteristics that should be embodied in the designs of new ships and aircraft; and the shore establishment, the number of naval districts, navy yards, naval stations, operating bases and other shore activities necessary for the support of the fleet as well as the general policy to be adopted towards these. Recommendations of the Board on all of these subjects are subject to the approval of the Secretary of the Navy.

It is thus seen that, contrary to statements so frequently seen in the press, the General Board is not to the Navy what the General Staff is to the Army. The two bodies are quite different. The General Board neither plans nor directs operations; it exerts no direct control over either material or personnel of the Navy. Neither is it directly responsible for the acceptance or rejection of inventions or ideas and considers such only when presented for consideration by the Secretary of the Navy.

The General Board is composed of such officers not below the rank of Captain as the Secretary may designate. Navy Regulations require that there shall be not less than five members who are line officers of the Navy, a majority of whom shall be of flag rank. A general officer of the Marine Corps may be designated as a member and at times officers of the Marine Corps have been members.

The specified composition of the Board thus insures a body composed of experienced officers of mature judgment, unencumbered by administrative duties, available at all times to consider such questions as the Secretary of the Navy may direct. In the consideration of any question the Board avails itself of all sources of information, civil and naval, foreign and domestic. Technical experts are freely consulted as are others having special knowledge on any subject before the Board. Hearings are conducted on various subjects at which opinions on the numerous aspects of questions are presented by those considered best qualified. Hence, recommendations made to the Secretary of the Navy by the General Board are based on the best available information and represent considered opinion of all phases of the question involved, and the best interests of the Navy and the country.

Labor, Management and the Navy

(Continued from page 103)

radio detection equipment; makers of lip-stick cases were working on bomb fuzes; lingerie houses were turning out camouflage netting; producers of beer cans were fashioning hand grenades, and adding machine builders were concentrating on automatic pistols.

Our great textile mills took on the job of supplying uniforms and blankets; packing houses undertook to store in cans the huge quantities of preserved victuals necessary to feed our fighting men.

From river bottoms and marshlands sprang new shipyards. We began to hear of such incredible feats as the launching of 10,000-ton cargo ships in inland cities; of entire Liberty Ship hulls being inverted to be worked on by a new welding process; of a full-sized prefabricated ship sliding down the ways only 4-2/3 days after her keel was laid.

In pushing its wholesale change-over, management even threw overboard its cardinal principle of peacetime policy—competition. Thus we find executives, production experts and engineers meeting around the conference table with men from other companies, tackling and solving mutual problems. Facilities and machine tools are pooled or loaned; coveted patents are exchanged freely. Technical secrets, long monopolized, are made available to erstwhile competitors and production short-cuts are worked out jointly to give momentum to the common effort.

Many of the larger manufacturers have adopted the sub-contracting system, whereby small business may assume its share of the production load—a practice heartily endorsed by the Navy. A plant with a small crew of workers can not

build a bomber, but it can make one of the 30,000 different parts of a bomber. And of plants employing less than 100 workers, there are at least 170,000 in the nation.

Management has also set its engineers to collaborate with Navy specialists to devise revolutionary ways of fabricating war goods, improving performance of certain products and averting critical shortages of materials. While innumerable instances might be cited of the saving of time and cost resulting from this constant search for new and better methods, one will perhaps suffice: The discovery that the barrel of a famous anti-aircraft gun of foreign design could be broached instead of processed by the traditional rifling method cut the manufacturing time for this part from 3½ hours to 15 minutes.

While management, in these and other ways, enlisted its resources in the Navy's gigantic program, labor rose to the occasion no less quickly and patriotically and assumed new responsibilities in our victory drive.

Even before Pearl Harbor, labor had demonstrated its fighting spirit when it pitched in and repaired in 5 days the damage done by fire to a \$2,250,000 defense plant at Cleveland, Ohio. It rushed construction of the immense naval base at Corpus Christi, Texas, to completion far ahead of schedule and smashed building records in putting up defense housing.

Upon our entrance into the war, labor voluntarily discarded its time-honored right to strike, and the score since then is 2,000 strikes prevented for each one that has occurred. Labor is trying manfully to eliminate even this small fraction of work stoppages.

Unions affiliated with the Congress of Industrial Organizations and the American Federation of Labor have of their own initiative waived double-time rates for holiday and Sunday work in all continuously operating war industries. The building trades unions have done this in the stabilization pact with the government and war contractors. The metal trades unions have done the same thing in the shipyards.

Despite the overtime provisions of the 40-hour week law, seven out of ten workers are now putting in 48 to 60 hours per week. In the machine tool industry, labor is working from 50 to 70 hours a week; in most aircraft factories, 44 to 54 hours weekly; and nearly 70% of the nation's shipyard workers are on their jobs from 46 to 52 hours a week.

In the production of ships, steel, machine tools and other materials, labor is setting new records regularly, only to smash these records in short order. In everything from driving rivets and welding seams to laying wartime oil-pipe lines and building Naval barracks, labor has exceeded any previous standards of accomplishment.

The battleship Alabama was completed nine months ahead of schedule. The mighty Iowa hit the water seven months in advance of the contract date. The greatest mass launching in history was staged by the shipbuilders of America last Labor Day, when no less than 174 naval and merchant vessels were launched in 60 different yards throughout the United States. The keels for 49 ships were laid the same day in these same yards. The achievement gained additional lustre from the fact that many workers donated their Labor Day wages as contributions toward the purchase of bombers, new ships, and more arms for our fighting forces, and toward Navy Relief.

In other ways labor has shown itself equally generous with its money as with its skill and sinews, notably when AFL Building Trades members recently presented to the Navy a new \$62,000 archives building for storing micro-films—one of ten buildings contributed by the group to the war effort with wages earned on extra days and holidays.

In recognition of the splendid service of both labor and management, the Navy instituted the Navy "E" award for presentation to plants that demonstrated their excellence in producing ships, weapons and equipment for the Navy. A total of 221 plants were so honored, with the privilege of flying the Navy "E" burgee at their mastheads. The present

Army-Navy Production Award was inaugurated in order that all our fighting forces could join in paying tribute to exceptional performance on the production line. Thus far, the Army-Navy Production Award has been made to 200 plants which are producing for the Navy. Over each of these plants flies the red-and-blue pennant with its wreath of oak and laurel leaves; and each individual employee wears the distinctive silver "E" pin as a badge of meritorious service to his country.

An honor not lightly bestowed, the "E" floating above a plant means that the workers in that building have earned their award with the same caliber of efficiency, skill and loyalty as the sailors of the warships that in times past won the right to display the identical symbol on their turrets or conning towers.

It means: "Well done to all hands."

Army Exchange System

(Continued from page 107)

the strictest attention is paid to the quality of the student officers. They are universally men of superior mental attainments and proven capability in mercantile pursuits. They are carefully selected and their course of study stresses the essential ethical qualities of modern business conducted on its highest plane, as well as the essentials of exchange operation from the military point of view. Similarly, the fundamental principles of their high fiduciary position as officers of the United States forces and as exchange officers are highlighted, and the student officers complete their course with amazing skill and enthusiasm.

The Army Exchange Service Purchasing Division is located in New York City. Here a vast quantity of exchange merchandise is purchased and received for overseas installations and sent on its way; and here also advantageous price agreements are entered into and copies of such agreements are distributed to all exchanges to permit them individually within the United States to purchase their needs of merchandise on prices and terms that result in great advantage to the military personnel. At New York also is installed the fiscal officer of overseas installations. He functions by appointment as agent and attorney in fact for such exchanges in all matters relating to finance and payment for acquired merchandise.

Army Exchange Service is organized with Executive and Control Divisions, Finance, Personnel and Service each has its own division head. Each of these Divisions functions as its name indicates. The Chief of Army Exchange Service and his Division heads meet and confer on matters of policy, practice and administration at frequent intervals. There is also present on such occasions the General Counsel of Army Exchange Service whose function as a staff officer is to advise the Chief and the Division heads on matters of law, procedure and policy.

Problems of personnel, property and finance that arise daily are in constant process of solution. As applied to Army Exchange Service, these problems differ from those of other branches of the Service for the reason that, except for payment of assigned commissioned personnel, neither Army Exchange Service nor the individual exchanges operate with appropriated funds. The entire System is self-supporting and self-contained. Thus the questions considered are more of a business, financial or managerial type, than they are of a strictly military nature. The mission to be accomplished is regarded as one of practical mercantile performance, which will be judged by the results obtained, rather than by the strictly military standard of the beneficiaries or the military processes essential for their proper administration.

This combination of mercantile and military mission gives rise to many novel situations, but the personnel has been found equal to the task, and the results have been remarkably swift and comprehensive with a view, not only to satisfactory performance, but to the establishment of policies and practices that will be found sound and useful in the days to come.

Panama's Importance in World War

(Continued from page 24)

dreams of the world during the previous 400 years.

Last World War served to emphasize the significance of the Panama Canal to national as well as continental defense. It facilitated greatly the transportation of certain essential raw materials to the production center, and, it doubled the efficiency of the Naval Forces, increasing the mobility of the Allied Fleets from one ocean to the other.

The Panama Canal has reduced the distance from New York to Valparaiso, Chile, in 3700 miles; from New York to Honolulu, in 6600 miles, and from New York to San Francisco, California, in 7900 miles. These facts afford important savings in time and costs of shipping operations, which mean a considerable economic gain. Through these means it has promoted generally the trade of goods between nations, while particularly it has benefited the peoples of the Western Hemisphere in their trade with one another and with various parts of the world.

No other single enterprise has done more than the Panama Canal to facilitate the readiness of movement of the Armed Forces from ocean to ocean as circumstances require, increasing, thus, the security of the United States, as well as that of the nations which comprise the American Continent; to augment the efficiency of the operations of the merchant fleets and to increase the industrial potentiality of the United States. No other single enterprise has done more for the prosperity and welfare of the Republic of Panama. Being so vital to the interests of both nations, it must be protected and kept away from the hands of the enemies of the things which we love most: freedom and integrity.

The treaty of 1903 entered into between Panama and the United States was wisely

revised by another agreement proclaimed on July 27, 1939, more in accordance with the spirit of true friendship and mutual understanding between these two countries and based upon the principles of Good Neighborliness advocated by President Franklin Delano Roosevelt.

The policy manifested in this document has served a great deal in making the defense of the Panama Canal a cause of concern and close cooperation between Panama and the other American Republics with the United States.

Today Panama stands arm to arm, shoulder to shoulder with the United States in the defense of the Isthmian Canal.

The Department of Justice and the War Effort

(Continued from page 27)

fort to plant the seeds of disloyalty in our soldiers and sailors, whether in "vermin sheets" which used considerable ink on avowals of patriotism, or the out-and-out pro-Nazi screamers which printed little notes up in the corner such as: "Not intended for circulation in U. S. Army camps."

In solving the unique war problem that arose on the West Coast with our entry as a belligerent, the Department of Justice and the Army were again brought into common ground. From certain parts of the Coast all alien enemies had to move. But a considerable number who were not aliens—American-born persons of Japanese parentage—also lived there. Among them was a number still loyal to Japan. That much we knew. Who they were, or how to distinguish them, nobody knew—probably not even the other individuals in their own group. And because the United States cannot risk espionage or sabotage, no matter what the source, a series of enforced evacuations was decided on as the only feasible scheme.

That order, being within the province of the military rather than the civil au-

thorities, was for the War Department to execute. The Alien Enemy Control Unit of the Department of Justice assisted the Army in setting up the necessary machinery for such a program. Evacuation has been accomplished with a minimum of hardship to those involved. The Army has done a fine job.

These are a few of the incidents of war that can be cited to show how closely tied in is the work of the Department of Justice with that of the men directing our armed forces. Others could be mentioned. The work of the Lands Division in speeding up acquisition of tremendous tracts through the country—room for the Army to grow in—is a story in itself. So is the assignment given the recently formed War Frauds Unit, which is working with Army and Navy procurement men to crack down on irregularities and spotlight profiteers.

In all these endeavors the teamwork of the various offices in my Department with the branches of the armed service has been most effective. This teamwork will continue, will be improved in every way possible. In total war, strength in any one spot may be communicated all down the line; weakness anywhere is hard to isolate. In our contact with the enemy, whether by the armed forces in battle or by the Department of Justice in civilian life, we are hitting hard, and behind the blows that are struck is the weight of coordinated effort. Our enemies will feel that weight increasingly. In time it will crush them.

Resources for Victory

(Continued from page 29)

limit. Questions immediately arose of food supplies and labor supplies which were met to a large measure by Departmental and Congressional action, while the administration was so carried forward that the civil officials assisted in every way possible the military and naval officers responsible for the protection of these possessions.

Agriculture and the War

(Continued from page 30)

It now appears that 1943 will be an all-out year for every phase of our war program. All our efforts must be thrown behind our military forces in the field so that the United Nations can successfully perform the vital assignments before them. We are on the offensive, and offensive war means that we must meet vastly greater needs, for food as for the other materials of war. American farmers know this. That's why the Nation can depend on them to produce up to the limit of their resources.

All-Out Mobilization for All-Out War

(Continued from page 70)

We know that within the next six months the problem of supplying men to the armed forces and workers to industry will grow much more difficult. We are moving rapidly into a situation where the Government must intervene increasingly in the labor market.

The War Manpower Commission would be derelict in its duty if it did not study carefully the need for National Service Legislation, and if it did not have plans prepared well in advance of actual need.

The term National Service often raises in people's minds the spectre of a dictatorial government, moving people about with no regard to their convenience, and forcing them into jobs which may be contrary to their training and interests. I should like to point out that this notion is entirely false and contrary to all experience in Great Britain and other democratic countries. The object of a universal service system is to answer the question which every patriotic person is now asking himself—where do I best fit into the total national effort?

to be REMEMBERED

PEARL HARBOR, of course, will always be remembered. Communications officers will remember, too, the important part that Strowger Automatic Telephone Systems are playing in the inevitable march to victory. The steadily increasing use of this equipment in all branches of the fighting services testifies to their efficiency in furnishing rapid, dependable communication under any and all circumstances.



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needed for our touring sedans was enough for the Navy and the Army. The steel we did not need for merry-go-rounds, juke boxes and waste-baskets could be used to build warships and guns. The factory space not required for the manufacture of over-stuffed furniture, inner-spring mattresses and self-tuning radios was allotted for the production of defense equipment.

first line of counter-attack. The self-sacrifice and zeal of the American merchant marine in the first six months of this year is beyond my powers of praise. We have lost fighting ships, of course:

Harbor they have gone down in open combat and the toll the Navy has taken of the enemy fleets—on the sea, under it and above it—it has been extravagantly costly to them. But even there the nagging fault-finders indulge in their vice. Sly accusations, unsupported by proof, breeds scandalous gossip and discomfiting rumors; it is inevitable that we shall lose others; but since the treacherous trap at Pearl

To quell it we would have to use drastic measures, which we shall not, or employ rebuttal with facts invaluable to the enemy, which we will not. The remedy is self-discipline in dealing and self-rejection of fault-finding which gives aid and comfort to the enemy by implanting doubt and discomfort in the nation and its allies.

Much of the Navy's war year is described by its responsible officers in succeeding pages of this publication. Let me introduce those chapters with a few observations. On the fighting fronts, fixed and amplified by the ships and men of British Norway, Poland, the Netherlands and the Netherlands East Indies.

Canada, Australia, New Zealand, of Mexico and Brazil, are fighting on our team. The Soviet navy toils in distant waters against great odds, nor is this toll call withheld any of the boundless praise due our land-locked comrades in China and Yugo-Slavia and Greece who are fighting

inner way toward the sea. This is a United Nations war for survival, leading to a United Nations victory.

The war will not only be won by standing toe-to-toe with the enemy in sluggish matches. Patient whittling-away of the ship strength of our maritime enemy, Japan, lessens the magnitude of the task our men will have to do with bomb and dayonet along the long, hard road to Tokyo.

our submarines have done work in Japanese waters which has, and increasingly continues, to contribute largely to the success of American naval forces in cutting Japan's maritime strength to a few thousand tons short of desperately impairing Nippon's extended lines of communication and supply.

Japanese forces in the occupied islands of the Pacific will suffer for lack of replacements in man-power, weapons, ammunition and medical supplies—for the lack of ships to transport them; and this despite the enormous tonnage of American, British, Dutch and other merchant-men trapped in Japanese waters by undeclared war. Meanwhile our own shipyards are

lanching naval vessels at a constantly accelerated rate, which has already provided us today with a far larger, harder-hitting and faster fleet than we had on December 7, 1941. What we are building, what we have commissioned and are about to send forth fully manned and armed, of course, in the top category of strategic secrecy. However, I can give you some idea of what we are accomplishing.

We have reduced the average time it took to build submarines by four months and three days, since Pearl Harbor. We have brought a battleship into the fleet nearly seven months ahead of the best previous record.

The faint-landers will sneer that our time is still too slow, although it is the fastest in the world. And on that single point I will wholly agree with them, and

so will the men who design the ships, the men who build them, and the men who man them and fight on them.

Global War (Continued from page 31)

margin to meet the vast requirements of war. I thought thousands of miles from our shores.

would have to reduce and limit our activities, and that is unthinkable for it would mean defeat. Pursuance of this policy has caused us to suffer losses, and there will be others: a certain proportion is inevitable month by month. For men will make mistakes. It is easy to say that someone has blundered, and, perhaps, that may be true, but we are fortunate in having de-

I have no fears as to the ultimacy of command. We have proved leaders on our home and sea fronts, and with competent leadership on the battlefields we can depend upon the men and materials which will be at their disposal. That will come through the genius of our people and that of our Allies; through the coordination and cooperation of all our forces: through the formation of a new world order.

fitude with which we will endure the hardships war imposes, and through the courage and aggressive initiative of our intrepid Army and Navy and of our brave Allies.

Following observations:

naval operations to date, I offer the following observations:

With the advent of war, the Navy was faced with a number of problems demanding immediate action. One was to protect our coastwise sea lanes against the incursion of German submarines. A second problem was to maintain the flow of planes, arms, equipment and supplies

ing bases. Another was to hold out-
against a superior Japanese force in the
Far East as long as possible and then to
fight a delaying action, making the ad-
vance of that force an expensive busi-
ness. Still another involved the sending
of striking forces to conduct damaging
raids on the enemy, wherever he could
be found. All of these tasks had to be

done without unduly reducing our strength at key positions. All of these things have been done. The protection afforded merchant ships is increasing; our convoys continue to go through; and the submarine menace is being vigorously combatted. Our small Asiatic Fleet stubbornly contested every forward movement of the Japanese forces toward the Dutch East Indies and

Our submarines in the Far East have taken a heavy and irreplaceable toll of Japanese shipping and men-of-war. Our cruisers and destroyers have given a good account of themselves in cooperation with our allies in this theater; and in other Pacific areas our carrier forces have inflicted serious damage on enemy ships and positions.

no one realizes better than I that defensive operations will not win a war, but a few people realized during the opening months of the present struggle that our immediate problems were to keep from losing it—that it was touch-and-go from December seventh until attrition in the East Indies and our defensive-offensive operations in the Coral Sea and at Midway modified the balance of power in the

At first, the war in the Pacific was characterized by amphibious operations, at which the Japanese, thanks to their experience in conducting landings in foreign countries, excelled. Then this day came, we lost no time in following up this advantage by the Solomon operations—our first true offensive of the war.

against opposition up and down the China coast for five years, are experts. As a result of continued successes, they

Global War

launched more ambitious projects in New Guinea, at Midway and in the Aleutians. Their supply lines were longer and the opposition stiffer, and eventually they were brought to realize that in these operations they had bitten off more than they could chew. But their innate skill and wide experience in this form of warfare has not been lessened and they are even more dangerous as a result of having these over-ambitious attempts frustrated. We must beat them at their own game, and in the Solomons today we are attempting just that.

custom calls for the application of fundamental principles which have been proven in previous wars. Moreover, no matter how hard we try to make our peace-time training realistic, the best way to learn how to fight is by fighting. The seasoned forces at peace are like a doctor who has studied surgery for twenty-three years without performing an operation. His

theoretical knowledge may be extremely but until he has applied the knife with reasonable frequency, he is not an expert surgeon.

Navy is now, and has been for a long time, fully aware of the great importance of aviation. We apologize to no one for the quality of our naval aviation, and I am one of the last people in the world who needs convincing that it must be strong and must be employed to its maximum possibilities.

training program. New planes and ships must be manned, new men must be trained, bases established, and the morale of our personnel given the season's worth of no and no-again combat. It is my conviction that there is no better fighter than the American pilot or marine, and that when he has the weapons and has been taught to use

them, he will give this country every reason to be proud of him, as indeed, so many of them have already. I am equally convinced of the ability of his leaders, of their courage and resourcefulness, and of their freedom from stereotyped conceptions of warfare.

times, our ships and our aircraft are spread over the entire globe. The demands are many and urgent and time is short. Nevertheless I am convinced that the power which we have set in motion cannot be stopped short of complete victory. It may be slowed down by enemy opposition from without or by lack of interest or ineptitude from within; but regardless of sacrifice or cost, we must and

shall keep it moving.

Ship's Service Activities

(Continued from page 109)

the activity of which he is in charge and is held accountable for any loss due to and diligence. When he is relieved an

Both the man relieved and the relieving head are present when this inventory is taken. Inventory is taken and his account closed. There is no centralized purchasing agency in connection with the Ship's Service Department. Individual Commanding Officer and Ship's Service Officers contact the firms with which they wish to do business and make purchases directly.

their ship or station.
passages directly for

As long as the enemy has a plane that can fly, or an armored vehicle that is capable of either moving or firing, the Anti-aircraft Artillery will have a job to do. Our troops know that, and are taking their training with a grim earnestness.

Modernization of the Army

(Continued from page 35)

the properly equipped infantry officer or the tank officer or the tank destroyer officer must know the force and limitations of what is really a new form of artillery support—that of the airplane—and by the same token the air officer must know the force and limitations of the various ground forces if he is to render the full aid of which he and his weapons are capable. We can no more be considered modern in this war until we achieve this condition in relation to air power than we could be so considered in the last war before our artillery and infantry were fully integrated. Many have theories of the proper coordination of this ground-air work and many have made studies or seen demonstrations of it, but I do not believe there can be any serious contention that our Army has yet solved this phase of modern operations. Actually the ground forces have yet to learn what they can really do with or without air support. With all our automatic weapons, tanks, and vehicles, our combat officers, ground and air, will have to learn this new art. As the enemy applied it, it was perhaps the chief factor in the original German and Japanese successes.

Very frequently and many times somewhat sententiously one hears quoted the statement that the principles of war never change. The repetition of this bromide, even though it is always accompanied by the qualification that methods of war do change, tends, I fear, to limit our military thinking and to develop resistance to new and far-reaching concepts of warfare. The statement may be true, but for it to be true the principles have to be so very broadly stated that they are not of much practical use. The German Army was modern in the real sense because it was part of a grand (in the sense of great) new concept of war—the weapons for such an army came afterwards and were adapted to the thought. The army itself was forged to fit the pattern of the nation at war in which every psychological and economical factor was marshalled for service. None of the United Nations except possibly Russia prepared for such a military revolution. Some individuals, it is true, saw new tactical developments ahead, but only occasional prophets spoke out—a de Gaulle, a Douhet, a Fuller, or a Mitchell, but in Germany there was more than a mind or two—there was the acceptance of the entire philosophy.

It has been centuries since such an impact as that which the airplane imposed on the military art has occurred, and no high command or staff commander can today act intelligently without constant reference to the force and power of air. How profound a change it will effect in warfare or what effect it may have even on some of those supposedly immutable principles of warfare remains to be seen. There is not much doubt that air power will produce at least as great an effect as any of the historic developments of the past, such as the introduction of the disciplined infantry formations of the Greeks and the Roman, of cavalry and

of gunpower. We are seeing the tactical use of air develop before our eyes—great striking forces against enemy cities and industries, battles at sea without a horizontal shot fired or one ship seen by another, the airborne troop attack, and such minor phenomena as the use of fighters as bombers and bombers as fighters. The infinite possibilities of air, I venture to suggest, are not yet and cannot yet be generally realized by our armed forces as a whole.

The developments are too swift and there is so little time for contemplation in the pace of war that much of what we could do is passed over in the accomplishment of what seems more pressing. Many feel, for example, that the infantry, artillery, and the armored forces have thus far not made full use of the airplane in connection with their command, communications, and observation work. While it may require an extraordinary mixture of qualities to make a good fighter pilot, any normal healthy person can learn to fly, and some, including the writer, believe that large ground units might almost as well operate without motor vehicles as part of their regular equipment, as without airplanes.

Whatever one may think of giving airplanes to the Ground Forces, no one can deny that the Ground people must know the force and effect of air. More than a smattering of commanders must be air conscious—all must be air sensitive. There was a time, a trifle difficult now to recall, when a lawyer could draw a will, approve a transfer of property, or give advice in any transaction without thinking of anything but the law which related particularly to the subject matter at hand, but today a lawyer who before doing anything else does not first ask himself what effect the tax laws will have, should be disbarred. So today Limoges and Blois are too good for commanders who undertake operations without knowing and considering the influence air will or might have on their plans.

But there are other forces than air which we have to appreciate and utilize in order to make an army modern. The internal situation in Europe today has great significance from a purely military point of view. The bitter hatred of the Nazi oppressors held by the oppressed minorities of Europe affords fields on which our staffs can plan. In a sense we have already landed our parachutists, many of them in Germany and Italy. To move on a large scale without considering how these great forces may assist us would not be sensible.

There are some aspects of this war which test our weaknesses, but in so many more important fields this war plays into our strength. The development of the plane and tank as military weapons fits into our airplane and automobile industries; our great journalistic and advertising capacities together with the unique position that the United States has always held and still holds as the hope of oppressed peoples give us an enormous advantage in the field of psychological warfare. In the very important realm of the air we not only have a great asset in the quantity and quality

of our materiel, but we have the even more important strength which our educational system and population afford us in terms of eligible pilot and airplane crew material. Apart from this national advantage, we are now entering the war after many thousands of the best pilots of our enemies have been destroyed. Properly utilized and conserved, this pool of pilot strength can be almost a decisive factor in itself.

These are only a few of the elements of this war that aid us. They must be joined with the power that well trained and well equipped troops can deliver, and above all they must be integrated into plans which enable our great strengths to be brought fully to bear upon the enemy. The need is for more than coordination of our weapons and our strength, as difficult and vast a task as that is; it is for a full realization of the strengths we possess and an imaginative skill in employing them.

With all our power it is quite possible for us to dissipate our strength among a variety of widely dispersed points, just as it is possible for us to destroy ourselves by concentrating everything against an impossible barrier. The opposition is too great today for us to prevail with merely a strong army—it must also be a smart army.

The Army Air Forces in Action

(Continued from page 39)

can out-shoot, out-last, and out-maneuver any comparable aircraft in any air force. Bristling with guns, heavily armored, fast and long-ranged, these bombers have demonstrated their amazing ability to fly through heavy anti-aircraft fire, repulse attacks by enemy fighters, drop bombs with great accuracy, and get back safely to base over hundreds and thousands of miles of trackless ocean. They have, in

effect, created a new concept of aerial warfare, and richly justified our emphasis on aircraft of this type. We have accomplished wonders, so far, with only a fraction of our potential air strength that will be available in the near future. A large proportion of the Army Air Force flyers that took part in the Midway triumph were in combat for the first time. We may indeed say to our enemies that they "ain't seen nothin' yet!"

In line with our plans to build up the world's greatest air power, the Army Air Forces were reorganized on March 9, 1942. As one of the three main elements of the Army—Air, Ground and Supply—the Air Forces have their own Air Staff, under the Commanding General, which is concerned with policy; an Operations Staff, including a Director of Military Requirements, Director of Technical Services, and chief of several administrative agencies; a series of Commands among which are the Flying Training and Technical Training Commands, entrusted with the training of the hundreds of thousands of men who will shortly be in the Air Forces, a Materiel Command for procuring aircraft and equipment and which conducts research and experiment, an Air Service Command which maintains air depots and distributes aircraft equipment and supplies, and the famous Air Transport Command which maintains air transport of men and materials all over the globe; and, finally, Combat Forces including all units of military aviation such as Bombardment, Interception, and Ground-Air Support. In this way, the four functions of the Army Air Forces: Policy, Operations, Commands, and Forces, are combined under one head to work smoothly among themselves and in close conjunction, not only with the other elements of our Army, but with our Naval forces as well. We have the airplanes and the men for world Air Supremacy in the near future, and we have the organization, too. We have far outgrown the confines of an "Air Corps." We are now the "Army Air Forces!"

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The FBI At War

(Continued from page 96)

the fire of war. The great benefits of this mission were made available to over 7,000 law enforcement officials in the United States in Civilian Defense and War Traffic Schools conducted by the FBI throughout the nation. A second mission has just returned and American law enforcement is receiving the benefits of their observations.

It can be truly said that FBI prepared for war on September 6, 1939—over two years before Pearl Harbor. On December 7, 1941, when our blood flowed from a treacherous stab in the back, the coordinated machinery of the FBI was ready—ready to go into action with the cooperative efforts of over 150,000 police officers—with the cooperation of Naval and Military Intelligence—with a militant and alert citizenry. On that very afternoon the FBI went to war—to secure this country internally, to preserve our home, industry and nation.

Within a few hours after this tragic attack, Agents of the FBI, working quietly throughout the nation, had apprehended more than 1,000 enemy aliens. At the present time approximately 12,000 alien enemies have been apprehended and where evidences of Americanism could not be substantiated warranting outright release, they were afforded hearings before impartial Alien Enemy Hearing Boards made up of reputable citizens. These Hearings Boards passed on the internment, parole, or release of the alien enemy. They make the recommendation to the Attorney General of the United States who renders the final decision.

In the first ten months of 1942 Special Agents of the FBI and cooperating law enforcement officials searched approximately 20,000 premises and dwellings of enemy aliens. Thousands of contraband articles were seized, including firearms, explosives, daggers, dirks, ammunition and short wave radio receiving sets.

The files of the Identification Division grew by leaps and bounds. With an average of 100,000 cards being received daily there are at present over 54,000,000 fingerprint cards on file. They are the prints of our boys in the armed forces, the prints of our workers in war industry, the prints of our people in government service, the prints of aliens resident here and the prints of our citizens who are guaranteeing themselves a positive means of identification. The FBI will always thus serve the honest citizen as it has always served law enforcement against the criminal.

I am happy to say that today the greatest service of this FBI activity is toward securing our national defense—protecting it from the influx of international criminals. Its daily accomplishments are challenging material for the most imaginative writer. The individual who applied for a position with the Navy Department in Pittsburgh, Pennsylvania, as an Associate Inspector Engineer, Materials, could testify to this. He admitted in his application an arrest in 1931 for violation of the Prohibition Act but he failed to mention that he was arrested and fingerprinted as a foreign spy on December 5, 1917, by the Police Department in Huntington, West Virginia.

Our Technical Laboratory today stands out as the greatest scientific arm of law enforcement. It is manned by almost 200 skilled technicians who have at their command every known scientific facility. This Laboratory's true value is shown today in its scientific analysis of evidence compiled in cases involving our internal security. Thousands of matters of possible espionage and sabotage value have been examined. The 33 members of the Gestapo espionage group, commonly referred to as the "Frederick Joubert Duquesne Gang,"—the nine members of the German spy ring, described in court circles as the "Kurt Frederick Ludwig Case,"—all of whom are looking out on the world today from behind iron bars—bear silent witness to the tremendous might the FBI's scientific laboratory is exerting today. The eight German saboteurs who submarined their way into this country intending to havoc our productive efforts and our internal security

—those men who were rounded up within 14 days of their landing on our shores by Agents of the FBI—learned fatefully that science and modern American law enforcement cannot be contradicted.

The National Police Academy proved to be the reserve force of the FBI. Many of its members were inducted into our service and are working shoulder to shoulder with our Agents in the field. Others are leading law enforcement agencies in their close cooperation with the FBI today. The Academy is still functioning in Washington, serving representative police officials throughout the country. We recently completed our twentieth session. At this time 702 men have graduated from this West Point of Law Enforcement and approximately 100,000 local police officers are through local training schools receiving the benefits of their attendance.

The activity of the FBI with cooperating law enforcement agencies throughout the country has been vast and extensive—many of the accomplishments, of course, cannot be spoken of at this time due to their highly confidential nature but I can say that law enforcement on the home front is fully mobilized and on the alert each hour of the day for contact with the enemy.

The FBI has enjoyed its close collaboration, cooperation and exchange of information with the Intelligence Services of the War and Navy Departments. It has been a pleasure working with them and assisting in many complex problems and our desire for continued cooperation is assured.

The Army and Navy are courageously proving to our Commander in Chief that the nation's will to live burns within them. The tempo of that same spirit beating within the heart of the FBI has set the pace for law enforcement.

A united and vigorous law enforcement profession assures the preservation of all American homes from the legions of Hitler and Hirohito.

The General of the Armies Speaks

(Continued from page 19)

that it will be spread around so as to provide for all.

Shipping, which we lacked in 1917, and which we labored feverishly to build, is as essential as Armies and Navies. It is my confident expectation that our energetic construction, plus diminished submarine sinkings, will assure the transportation that will be required.

With unity existing amongst the United Nations, with coordination of their agricultural, industrial and military programs and operations, I am certain that our enemies face final, inevitable defeat. For them the tide has turned. In a time not too distant, the peoples whom they enchain and the territories which they despoiled will be liberated, and the civilization they are attempting to destroy will be rebuilt upon a basis which will move us toward that goal desired by all men, a lasting peace.

The Exacting Test of War

(Continued from page 99)

ditions which may be anticipated in the particular theater of operations to which they are assigned. Further, the surgeon of such a force receives the complete analysis.

Great assistance has been received from the studies of the National Research Council and the gathering and evaluation of the most recent advances in medical science for publication and use by Army medical officers.

In all previous wars, and again in the present conflict, venereal disease has proved one of the most troublesome conditions to control. It introduces an administrative and social problem as well as a medical one. The recognition of this fact has led to the placing of responsibility for the conduct of a campaign of control on military commanders as well as military surgeons; upon the civil population as well as upon the military.

The present program has been enlarged to include considerations of this nature.

Venereal disease control officers are assigned to headquarters of large tactical units. The civil authorities are incorporated by the inclusion of the Division of Social Protection of the Federal Security Agency, the United States Public Health Service and by inviting the attendance of representatives of the American Social Hygiene Association.

Naval authorities participate as a matter of course. The May Act was brought into being in order that the Federal Government might assist communities unable to cope with the problem. It was not anticipated that the use of this measure would be required often, nor has it been. In localities of two states only has this law been invoked.

The control program has succeeded very satisfactorily. There was an initial rise which has been followed by a moderate decline so that in the first six months of the current year the average rate per thousand has been 38.2. The current rate represents an achievement beyond the most optimistic hopes of the military surgeons of high attainments who were most closely associated with the inauguration of the Army's long term campaign against these diseases in the earliest years. It should be clearly understood that with the change of policy in admitting infected cases to the military service the statistical rate of Venereal Disease will rise. This, of course, will not evidence a break-down in the program of control.

Special facilities have been set up at the Army Medical School to study virus diseases, the importance of which has come to the fore in latter years. An interesting, though not dangerous, virus disease is atypical (virus) pneumonia. The death rate is exceedingly low. However, due to the fact that it is a virus disease, a special commission has long been charged with the duty of making a detailed study of this condition.

RESTORATION. The hospitalization facilities and matériel have undergone expansion paralleling that of the Army. The Medical Department is now operating one of the greatest and most far flung chains of hospitals in the world. An immediate and pressing difficulty is that of the procurement of professional personnel.

During the year many medical supply depots have been established in localities convenient to serve areas where there are great troop concentrations. The weight of medical supplies which was formerly in New York City has been shifted to St. Louis with the result that the establishment at the latter city is the largest supply depot of any branch or arm of the military service.

The decisive importance of mobility has been one of the supreme lessons which have emerged from the present conflict. As a consequence the Medical Department has been occupied with the problem of increasing the mobility of military equipment. Mobile pack equipment for the transportation of supplies of a battalion aid station has just been designed, and is being subjected to test.

A Mobile Optical Unit which is able to replace broken lenses immediately in the field has been developed. Each one of these units is designed to serve a type field army.

The Modern Field X-ray Unit which is the product of several years work at the Army Medical School is an article of highest importance. This unit is designed to be readily portable and may be put into operation within one half an hour after arrival on the battlefield.

Special medical packs or kits have been developed for use with parachute troops for arctic service and for use in the jungle.

The transportation of wounded by airplane ambulance is another important development in medical field service. The fact that properly selected patients can be transported vast distances from the battle area to the homeland in a short space of time is the distinct advantage of airplane evacuation.

Grim realities confront the nation which no longer seeks appeasement for peace but has girded itself for war. To the predatory states who would destroy us we say, "I have no words, my voice is in my sword."

Naval Communications In Wartime

(Continued from page 100)

flexibility of movement which such communication speed permits has changed the strategy of modern war. Surprise raids have become the custom rather than the exception, and the need for speedy reinforcements makes radio an essential weapon of defense. In both offensive and defensive tactics, the efficiency of a communication system generally determines the success or failure of an operation. It may be said, then, that in the triumphs of Coral Sea and Midway, Naval Communications was able to do its share.

The first year of war has put the methods as well as the equipment of Naval Communications to the test. Neither has been found wanting. The success of such a widespread organization, involving dozens of stations and hundreds of ships, was achieved only by constant teamwork. Such coordination was realized by the efforts of the thousands of men in Naval Communications. Key men of long experience were able to train Reserves called to active service. Communications schools were organized in important cities, and their numerous graduates are now pouring in to fill the personnel requirements of the expanded service. To supply the needs of new bases and recently commissioned ships, reserve stores of equipment are ready. Research has been continued even in war so that the Navy's high standards of performance will be maintained. Constant inspection of machines and men make it certain that the efficiency of the organization will not decrease, since the burden would be too much to bear if one link of the chain grew weak.

Looking back on the first year of this difficult war Naval Communications can find a good deal that is encouraging and a good deal that may be improved. Two hemispheres have been traversed, oceans have been spanned, and close contact with distant lands has been established. Contact with our fighting forces has been and will be maintained until the final Victory is won. There are problems of supply yet to be worked out and overcome; the correct personnel in the correct job must be placed; in a few instances some overlapping occurs and must be eliminated. There must not be a moment of complacency; there is always room for improvement in every organization and towards this end Naval Communications must and will strive. When victory is ours, and peace comes again, then, and then only, will it be time to say whether the job has been well done.

The Army Signal Corps

(Continued from page 101)

so by its production of training films, which give the trainee an insight into his equipment and tactical problems, and thus create better soldiers in less time. These educational motion pictures are made partly on location at maneuvers and elsewhere, and partly in the animation studio. A number of former Hollywood writers, directors, cameramen and technicians are now engaged on the Signal Corps film program, which has been multiplied repeatedly as the result of the great demand for the product. And, out on the battlefield, where the fighting is thickest, cameramen of the Signal Corps are and will be on hand to take action shots for the information of the Army and the record of history.

The Coast Guard Academy at War

(Continued from page 92)

ditions of the Service in living and studying alongside the regular cadets.

The attitude of the reserve cadets towards their work leaves nothing to be desired. They know what they are here for and when they leave they will know what they have to do.



What Happens when a Plant Slows Down?

In modern warfare, as never before, the fate of the fighting man at the front depends on the production man at home.

For total warfare requires vast quantities of arms and equipment, and the resources of a whole nation to make them. And unless we make them—"enough, in time"—and deliver them to our forces, we are sacrificing lives as surely as if we sent soldiers to battle with hands tied.

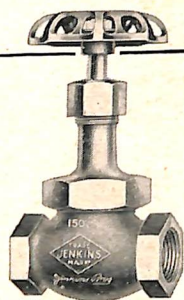
That is why it is vital today to avoid anything, however small, that might slow up production. That is why the prevention of interruptions caused by valve failures assumes new importance.

Because of this, and because many valves in present use are practically irreplaceable until after the war, wise management will revise and improve standards of valve maintenance.

Regular inspection of valves by competent men . . . replacement of worn parts before destructive deterioration takes place . . . proper installation of new valves . . . careful instruction of new workers . . . all will reduce slow-downs due to valve failures, and help to assure "enough, in time".

You are invited to consult with Jenkins Engineers on any phase of the problem of valve conservation.

Jenkins Bros., 80 White Street, New York City; Bridgeport, Conn.; Atlanta, Ga.; Boston, Mass.; Philadelphia, Pa.; Chicago, Ill.; Houston, Tex. Jenkins Bros., Ltd., Montreal, Canada; London.



JENKINS VALVES

For every industrial, engineering, marine and power plant service . . . in Bronze, Iron, Cast Steel and Corrosion-Resisting Alloys . . . 125 to 600 lbs. pressure.

Science and the Navy

(Continued from page 93)

So much for the facilities and arrangements provided by the Navy, itself, in bringing science to participate in the solution of its problems during normal peace times. There are now more than three thousand scientists and qualified research assistants employed in the research establishments operated by the Navy Department. Before looking at the picture of scientific participation in these matters as altered by the country at war, a brief review of the organizations that have been set up during past wars to bring the scientist into the war effort will be helpful to an understanding of the overall contribution that science is making in the present war.

During the period of the Civil War a movement was brought to culmination which had been under consideration for a number of years among scientific men of the United States for the establishment of a national scientific organization which would have official governmental recognition. This was accomplished by Congressional action, approved by President Lincoln on March 3, 1863, incorporating a National Academy of Sciences. The principal purpose of the Academy, as specified in this enactment was "... whenever called upon by any department of the Government (to) investigate, examine, experiment, and report upon any subject of science or art..." Under this mandate the agencies of the Government have called upon the Academy repeatedly for advice upon special scientific problems such as the alloys suitable for coinage, the determination of certain standards in weights and measures, the cause of early slides in the Panama Canal, the conversion of forest lands, etc.

With the extension of scientific organization in the United States during the ensuing fifty years, it was recognized during the year prior to the entry of this country into the first World War that additional facilities would be required in order to make the research resources of the United States available to meet the technical needs of the Government in preparing for its unavoidable involvement in that conflict. Accordingly, in the early summer of 1916 the Academy proposed the organization of a National Research Council, implemented by special committees, as an active agent to coordinate scientific facilities for technological military purposes. This was accepted by President Wilson, and the Research Council served during the next two years in co-operation with the Council of National Defense and bureaus of the War and Navy Departments in scientific work upon technical problems of warfare.

Before the close of the World War, it was realized that a coordinating agency such as the National Research Council, widely representative of scientific interests and organizations, could be of definite use in peace as well as in war time. Accordingly, President Wilson requested the National Academy, by an Executive Order, dated May 11, 1918, to perpetuate the National Research Council, and outlined a wide variety of functions in which the Council should serve in the progress of science and in assistance to the Government in the application of science to the public welfare and the national defense. Under this directive, the Council has developed contacts with the major scientific organizations of the country, and—in its status as an operating agency of the National Academy which is itself a government created institution—is able to make the research resources of these private organizations available to the Government in a selective and coordinated way.

The administrative expenses of the National Academy of Sciences are largely met from the income of a gift of \$5,000,000 made to the National Academy of Sciences by the Carnegie Corporation of New York. The charter of the Academy provides that the Academy shall receive no compensation for its services to the Government. The Academy is reimbursed by the Government only for actual expenses incurred in conducting investigations for the Government. Neither the Academy nor the Council receive maintenance funds by direct appropriation

from Congress. The costs of scientific investigations which it makes or sponsors for others than the government are defrayed from special gifts or financial aid received from time to time from various sources, such as the Rockefeller Foundation, The General Education Board, the National Foundation for Infantile Paralysis, etc. In most of its activities the primary function of the Council has been to provide the auspices under which scientific men of the country may join in the promotion of research. The Council is not an institution for the maintenance or operation of scientific laboratories, but rather an organization which attempts to integrate the work of individual scientists and to assist in coordinating their efforts.

The National Research Council is in a position to provide assistance in any scientific field. For example, the Army, the Navy, and the War Production Board all have urgent problems connected with metals. To assist in the solution of these problems the National Research Council has set up the War Metallurgy Committee. This committee, serving as a nerve center, has made available to these departments, the services of all of the personnel engaged in metallurgical research in industry and in academic institutions totaling not less than 10,000 persons.

The fighting unit in war is not a weapon alone nor a man alone, but a combination of man and weapon. With the increasing complexity of modern weapons, it has become vital to select the right man for each weapon, and to train him in its use. A joint request from the Army and the Navy to the NDRC resulted in the National Research Council setting up a Committee on the Selection and Training of Service Personnel to advise the armed services in these matters and to set up procedures to give effect to the recommendations made. This Committee consists of some of the most eminent psychologists and educators in the country.

In order to coordinate the war activities of certain of the executive departments of the government the Council of National Defense consisting of the Secretaries of War, Navy, Interior, Agriculture, Commerce and Labor was set up by Act of Congress in August, 1916. The Council filled an important need during World War I, but became inactive after the War. When hostilities broke out in Europe which led up to the present world conflagration, the Council of National Defense again became an important piece of government machinery. In June, 1940, the Council, in an order approved by President Roosevelt, established the National Defense Research Committee. The order briefly described the duties of the committee as follows: "The Committee shall correlate and support scientific research on the mechanisms and devices of warfare, except those relating to problems of flight included in the field of activities of the National Advisory Committee for Aeronautics. It shall aid and supplement the experimental research activities of the War and Navy Departments; and may conduct research for the creation and improvement of instrumentalities, methods, and materials of warfare—"

This Committee functioned for about a year under the Council of National Defense, when it became apparent that the Cabinet officers composing the Council could not give it the administrative attention that it needed in order to carry on its work effectively. It was felt also that Medical Research should be sponsored by the Government in the same manner as the mechanisms and devices of warfare. President Roosevelt, accordingly, in June, 1941, established as part of the Office of Emergency Management, the Office of Scientific Research and Development and placed the National Defense Research Committee under this new office. At the same time he established also a Committee on Medical Research under the new office. The Office of Scientific Research and Development is headed by a Director which gives it the benefit of one man control. The Director derives his authority directly from the President and is responsible only to him for the proper performance of the work of the office.

The National Defense Research Com-

mittee consists of eight members, four of whom are appointed by the President on the recommendation of the Director of OSRD; two are officers of the Army and Navy designated by their respective secretaries, and two are ex officio members, namely, the President of the National Academy of Sciences and the Commissioner of Patents.

Requests for research work usually originate with the Army or Navy. Projects can also be originated by foreign governments as the President's executive order provided that such work may be done for "any country the defense of which is considered by the President to be essential to the defense of the United States." Some projects originate with the National Defense Research Committee, itself. All projects must be approved by the Committee before they can be undertaken.

Appropriations are made by Congress to the Office of Scientific Research and Development for carrying on this work. The actual research is done under contract for OSRD by existing academic and industrial laboratories. As closely as practicable, these contracts are made so that the work shall be done without profit or loss to the contractor. A few laboratories have been expanded with funds provided by OSRD, but in general existing facilities have sufficed to carry on the work. The Office of Scientific Research and Development does not operate directly any laboratories or facilities of its own.

The extent to which science is contributing to the war effort as represented by the Office of Scientific Research and Development can best be illustrated by a few figures. The OSRD has entered into a total of more than 1300 contracts for research work since its establishment. The work covered by these contracts is being done in about 300 research laboratories and establishments scattered throughout the United States. These contracts represent about ninety-four million dollars in probable expenditures. For the fiscal year 1941 the OSRD appropriation for research and development totalled approximately eight million dollars. For the fiscal year 1942 this amount rose to forty-five million dollars and for the fiscal year 1943 the appropriation is seventy-three million dollars.

It will be noted that in the order describing the duties of the National Defense Research Committee quoted above, the following appears:—"Except those related to problems of flight included in the field of activities of the National Advisory Committee for Aeronautics." Advances in the field of aeronautics have almost from the beginning of the art been made by the scientific method rather than by the trial and error method. This has been due primarily to the fact that the first successful flight was achieved at about the same time that science began to get into its stride as the servant of the inventor, and secondly, because it was obvious from the beginning that the various goals of aeronautics had no chance of being reached, except by way of the scientific approach. These considerations led to the creation by Act of Congress in 1915 of the National Advisory Committee for Aeronautics. The Act provides that the Committee shall "supervise and direct scientific study of the problems of flight with a view to their practical solution" and "to direct and conduct research and experiments in aeronautics." Basically, the functions of this Committee are intended to coordinate the research needs of civilian and military aviation, prevent duplication of effort in that field, and unify control of scientific aeronautical research.

The Committee is composed of fifteen members appointed by the President to serve without compensation, and consists of one representative from each of the aeronautic branches of the War and Navy Departments, one from the Civil Aeronautics Authority, one representative each from the Smithsonian Institute, the U. S. Weather Bureau, and the National Bureau of Standards, together with six additional persons who are acquainted with the needs of aeronautical science or have skill in aeronautical engineering and its applied sciences.

The Government actually owns and operates the principal aeronautical research

laboratories. Research work is done for the aviation industry at these laboratories at cost. Some such work is also done by the industry itself, but not by any means to the extent that the automobile industry, for example, does its research work in its own laboratories. The principal aeronautical research laboratories of the Government are the Langley Memorial Aeronautical Laboratory at Langley Field, Virginia, the Ames Aeronautical Laboratory at Moffet Field, California,—a third major research station designed to cover aircraft engine development is under construction at Cleveland, Ohio, having been authorized by Act of Congress in June, 1940.

It will have been noted from the above that research is carried on by various bureaus and branches of the armed services, by several other agencies of the Government, and by a number of quasi governmental agencies. Frequently each of these activities contributes something to a research project or a number of branches of the armed services have an interest in the projects. In order to insure that on the one hand all interested groups are brought into the picture and on the other hand that there is no duplication of effort, the Office of the Coordinator of Research and Development was established in July, 1941 to function directly under the Secretary of the Navy. This office was established particularly with a view to facilitating the relations between the scientists mobilized under the Office of Scientific Research and Development and the Navy. A similar coordinating office has been established in the War Department. These two offices keep in close touch with each other and have representatives who sit in on all conferences involving research affecting both services.

The Army Transportation Corps

(Continued from page 94)

problem facing the Transportation Corps. It is the problem presently being attacked by the Transportation Corps, and it is the problem that will be solved by this Corps.

To sum up the functions of the Transportation Corps, it handles movements of troops from training camps to the front, and movements of war material from the factory door to the theaters of operation and overseas commands. There the Transportation Corps turns it over to the Commanding General and comes back for more.

The movement of our rapidly growing army, its equipment, material, and supplies to the theaters where it will be able to attack the enemy and keep on attacking until the Nazis and Japs are crushed, is a gargantuan task but one essential to accomplish. The fulfilling of this vital mission will be the contribution of the Transportation Corps to the victory which must be ours.

The Operation of AGD

(Continued from page 146)

classification and machine records.

Many field establishments are maintained and operated, among them the Recruiting Publicity Bureau, Machine Records Units and Army Postal Service Inspection Units.

Officers of the Department are assigned to the staffs of commanders at the larger headquarters, such as armies, corps, service commands, departments, divisions, and other independent commands, at home and abroad. These officers perform duties generally similar in nature to those carried out by officers of the Adjutant General's Department within the War Department.

The comparative facility and rapidity with which the peace time organization of the Adjutant General's Department has been converted and expanded to meet the tremendous demands of total and global war constitute convincing evidence of the fundamental soundness of the principles of procedure developed by experience, which are responsible for the efficient organization and operation of the greatest administrative job in America.

The Army and Industry

(Continued from page 32)

our economic structure because of racial or religious prejudice.

Discrimination because of creed or color is indefensible at any time. When it prevents workers whose ability is desperately needed from entering employment in time of war such discrimination is as bad as aid to the enemy.

Even the sketchiest recital makes apparent the titanic character of the task that lies before us in achieving the maximum effectiveness of our men, materials and machines. It is important for us in the Army to remember that we do not have all the answers to the problems involved.

Far from setting ourselves up as experts in fields about which we are relatively inexperienced, we must cooperate with and rely upon those whose previous training has given them greater understanding of the intricacies of modern production. It is the Army's job to make known what it needs and to see to it that the civilian agencies in charge of production do not fall down on their end of the job. The Army must act as watchdog and hurry-upper, spurring industry to ever-greater effort and intervening directly only when industry is not doing the things that must be done.

It is easy for a soldier to sit back and criticize industry because there isn't enough copper, or enough steel, or enough munitions. It is easy for the civilian population to criticize the Army because, lacking munitions, there aren't enough victories. It is easy for labor to sit back and criticize employers for failing to anticipate the needs of the war. It is easy for the employers to criticize labor for refusing to relax standards that stand in the way of increased output. It is easy to criticize. It is much more difficult to get things done.

Squabbling among ourselves will not win this war. We must respect one another's abilities and contributions. Only

by pooling all our energies and all our resourcefulness and all our determination can we wipe out the black forces of totalitarianism and build a brighter world.

Norway's Part in the War

(Continued from page 44)

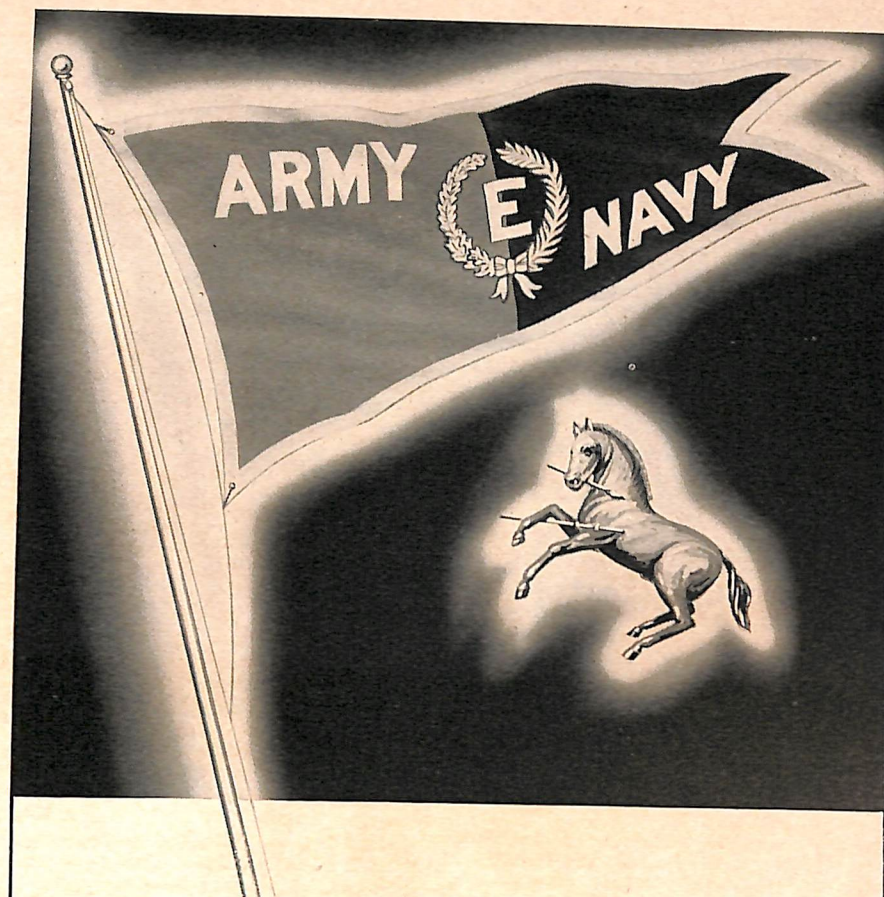
don, seat of the Royal Norwegian Government in Exile.

Numerous Norwegians are also doing their bit in the war as members of the fighting forces of Great Britain, the United States and Canada. It has been said, for instance, that for every man in the Royal Norwegian Navy there is another Norwegian in the British Navy. During the past years a large number of Norwegian men and women have escaped from Northern Norway into Northeastern Russia and have there found satisfaction for their long-cherished desire to come to grips with the Germans on equal terms.

Matching the courage and determination of the tens of thousands of Norwegians who are fighting the enemy from abroad are the hundreds of thousands of Norwegians at home who, cost what it may, steadfastly resist every new Nazi encroachment. In two and one-half years of occupation they have had to endure untold hardships and humiliations. But they have not lost faith, nor will they. They have proved themselves unconquerable.

In a greeting sent to King Haakon on his 70th birthday, August 3, 1942, the people of occupied Norway expressed their purpose and courage in these words:

"The Norwegian home front has one line of action, and only one. We have chosen to live or die in a fight for our native land, and there can be no thought of compromise. This line of action of our Norwegian home front is independent of any aid from our Allies—yes, even of the war's outcome. Let it be said today: *The Norwegian home front will never give in.* Other occupied countries may carry on their struggles for liberation along other lines. We have only this one."



In Our 106th Year

WE are proud that the nation's fighting forces have honored the employees of our Company with the Army-Navy "E" pennant for their outstanding record of achievement on the vital production front.

The award comes to us in our 106th year of continuous progress in arms manufacturing.

This is the fifth major war in which Colt arms have played an important rôle in backing up our fighting forces on the field of battle—on duty where the fighting is thickest. Today Colt experience and craftsmanship are turning out the finest weapons in our history.

Our target is the most important since the birth of our country. Our production must aim true and hard. An unbroken flow of arms must be kept moving to our fighting fronts.

Until the dawn of peace, the only guns to come off our production line bearing our trademark will be Colt machine guns, cannon, automatic pistols and revolvers . . . all for the United States and our Allies.



COLT'S PATENT FIRE ARMS MFG. CO.
HARTFORD, CONNECTICUT

Serving every service . . . HOUDAILLE-HERSHEY CORPORATION

In past years, Houdaille-Hershey Corporation has devoted its major efforts to serving the automobile, airplane, railroad, refrigeration, radio and allied industries. We have taken pride in the variety and quality of our products and the scope of our services.

Today, our primary aim is to serve the armed forces. We are manufacturing scores of items under prime and subcontracts for aircraft, tank and army vehicle parts, small arms and parts for naval equipment. Insofar as he is dependent upon us, we are determined that no soldier or sailor shall ever lack the essential tools for winning this war.

HOUDAILLE-HERSHEY CORPORATION
General Executive Offices, Detroit, Michigan
and ten strategically located plants engaged 100% on war production

Naval Ordnance

(Continued from page 87)

Each division is further divided into sections and subsections, each under a responsible officer or civilian. The bureau policy is decentralization of authority and responsibility, in all bureau activity, both internal and external.

Frequent conferences, attended by the six division directors and the senior aviator, are called by the Chief and Assistant Chief, to acquaint all these officers with current progress in the major problems of the bureau.

Some standardized naval ordnance equipment and material is obtained from the Army Ordnance Department, such as small arms, certain small caliber machine guns, and ammunition for these weapons; some of the Navy's smokeless powder, and most of its TNT; and certain shell fuzes.

On the other hand, Navy Ordnance supplies a number of standard items of equipment to the Army.

The general policy is for one service to produce all of a certain item for both services, instead of having the two services competing in the market for the same product, as was the case in the last war.

Most of the Navy's ordnance items, however, are manufactured in its own plants or by private industry. The present gigantic production program has required the establishment of new facilities on a huge scale. Nine new naval ordnance plants have been built, all of them being located in the interior of the country for strategic reasons. More than two hundred and twenty-five companies have had their facilities increased, some by many millions of dollars. Over four thousand prime contracts for naval ordnance have been awarded to private industry, and the number of subcontractors exceeds twenty thousand.

As a stimulus to production, in compliance with a directive of Secretary Knox, the Bureau of Ordnance evolved in July, 1941 an incentive plan utilizing the time-honored Navy "E." Companies and naval plants which were outstanding in production of naval ordnance received the Bureau of Ordnance flag and a blue pennant with a white "E." Lapel buttons inscribed with the "E," the words "For production," and the company's name, were issued to each employee.

The underlying thought was to make each individual in these plants feel that he or she was also in the service. The response was most gratifying.

Companies receiving the award increased their production still further, and hundreds of those who had not yet "made the grade" have written or wired for full information as to what was necessary to qualify. This award plan was later adopted by the Navy Department as a whole, with a Board of retired Admirals receiving recommendations from the Bureaus and deciding upon the award. In July, this incentive plan evolved into a joint award made in the name of both the Army and the Navy. The joint Army-Navy Production Award has been given to over 500 companies and Government manufacturing establishments since its inception. Companies receiving the award may be nominated by either Service but must have produced to "E" standards for both where there is a joint interest. At the end of each six months' period subsequent to the award, every company's record is reviewed and if satisfactory the award is renewed by the addition of a star to its pennant. In those rare cases where the record is poor, the award is withdrawn. A brief ceremony is arranged for the presentation with high-ranking officers as speakers. These events have a strong patriotic appeal to the entire community as well as proven beneficial effect upon production of the plant thus honored.

While there is much still to be done, and this is no time to be complacent and "rest on our oars," I feel that we are well underway, and that with the fine cooperation of private industry and labor which we are now receiving, we will arrive, not

too late with too little, but on time with plenty, both in quality and quantity.

War Censorship

(Continued from page 75)

sors cut out dangerous references to movements of troops and ships, details about the manufacture of planes, tanks, and munitions, and other bits of information which the Axis powers might be able to put to use. At the same time, the censorship process enables the United States Government to obtain from incoming mail and cables news of the enemy's operations and morale.

About 12,000 persons are now engaged in this work. By contrast, the voluntary program of censorship for the American press and radio requires only a score of people and costs only one-half of one per cent of the Office of Censorship's \$26,500,000 budget. This voluntary domestic program, however, is really the heart of censorship. If damaging information is kept out of print and off the air, the work of saboteurs and Axis agents in this country is made all the more difficult. What they cannot learn in the first place they cannot smuggle across our borders and into the hands of the enemy.

It would be a simple matter for the censor to tell editors and broadcasters that they could print virtually nothing about the war unless it was carefully prepared by an official source. But that is the way of the dictators. They have to spoon-feed their people. Their newspapers are mere propaganda sheets. Their borders are sealed against the truth.

If a free people is to be expected to go "all out" for the war effort, it must know what is taking place. It must be informed as to the aims of its leaders, the progress of battles, and the general success of its vast war production program. Details, of course, often must be withheld, but it is axiomatic that to be intelligent the people must be informed.

The question often arises as to whether it is more important to withhold a specific piece of news so that the enemy cannot learn about it, or to make it public so that the American people can better judge the situation. The Office of Censorship does not censor the Government. If an official decides that certain information under his jurisdiction should be disclosed, we regard him as an appropriate authority. The Office of Censorship, however, has issued Codes of Wartime Practices for both press and radio, outlining types of information which should be withheld if no responsible Government official will approve its publication. Among these categories are composition and movements of military units, ship movements, descriptions of new airplanes, details of factory output, movements of the President and other high officials whose safety might be endangered, and even certain weather information that might enable the enemy to pick a good night for a bombing raid.

Since much of this material has to do with military information, it is only natural for the Office of Censorship to work closely with Army and Navy officials. With their cooperation, for example, we have worked out a program for handling news about any air raids on the United States. This program is sufficiently restrictive so that the enemy could not learn details which might aid him on the next raid. At the same time, sufficient news would be distributed so that the people would not become panic-stricken by unfounded rumors.

Thus it is obvious that censorship, intelligently applied, can be an important adjunct to military action. But we must also bear in mind that over-censorship, operating arbitrarily, could be detrimental to public morale. The Office of Censorship, conscious of that danger, is endeavoring to apply common-sense regulations, as the President directed, "in harmony with the best interests of our free institutions."

Naval Shipbuilding and Industry

(Continued from page 69)

which shipbuilding facilities may be expanded is subject to restrictions far less elastic than those merely geographical. The extraordinary demands for armament of all the kinds required for an all-out war effort have strained the country's productive capacity for materials and tools to a point beyond anything that previously had been envisioned, necessitating a pause for review and, in some cases, curtailment of expansion projects. Shortages of manpower, while not as acute as needs for material, nevertheless offer another real problem. The training programs which have been set up in all the principal shipyards of the country are managing to keep pace with the requirements for new workers, but the nation's experienced shipbuilding talent has been stretched thin to the snapping point. In some cases it has been necessary to draw on the thin ranks of retired naval officers to supply the much-needed "know how" which was lacking in some of the newly established or rehabilitated shipbuilding organizations.

Important as are these restrictions there looms above them all an even more basic limitation, viz., the steadiness and continuity of the flow into the shipyards of the turbines, gears, generators, and other component parts without which the ship is but an empty shell. The time is long since past when such naval shipbuilding as was carried on in pre-emergency days could be concentrated in the several Navy Yards and in less than a half-dozen private yards, each of which was a self-sufficient unit capable of carrying the construction of a naval vessel, with all its component parts, through from start to finish with a minimum of outside assistance from a handful of highly specialized industrial sources of supply. Today there are approximately 300 yards engaged in the current naval shipbuilding program. With but very few exceptions, the activities of these 300 shipyards have been concentrated almost exclusively on the functions of hull assembly and installation of machinery and other component parts drawn from outside sources of supply. The extraordinary work load which has thus been thrown on the forces of industry would be enormous even if it were generated solely by the naval shipbuilding program. When to it are added the comparable burdens imposed upon the same branches of industry by the emergency programs of the Maritime Commission and the War Department, the job assumes proportions of sheer stupendousness.

When it is understood that the hull of a subchaser, for example, can be assembled in somewhat less time than is required for the manufacture of the vessel's intricate propelling machinery, it can be appreciated why it will be difficult to keep the shipyards in constant high gear until industry can be correspondingly stepped up to a rate of production synchronized with that of the yards. Herein lies the explanation of the question oft-repeated of late as to why it is that all our shipyards are not working around the clock. The reason is that as yet it has not been possible to build up a flow of materials and machinery sufficient to keep the yards going full speed ahead for 24 hours a day.

The achievement of such a flow has been the constant objective of the Bureau of Ships for the past two years. Where at first the facilities expansion program was concentrated on the building of new shipways, docks and piers—that is the facilities of the shipyards as such—an ever-growing emphasis has for many months past been placed on the expansion of the industrial facilities producing the integral parts of the ships. The amounts which the Navy Department has expended through the Bureau of Ships for the expansion of private shipbuilding facilities has already been more than matched dollar for dollar by the amounts allocated for the expansion of the privately-owned industrial facilities, and immediate future will even more substantially pull the balance down on the side

of industrial expansion.

In the not too far distant future, therefore, it is anticipated that the flow of machines and materials from the industrial plants to the shipyards will be running at a volume sufficient to keep the yards operating at a maximum capacity of 24 hours a day. Already the productive capacity of the major sources of naval machinery have been blown up to many times their greatest peace-time achievements. While specific examples may not properly be cited, mention may be made of one producer of marine engines which is now operating at a rate of production eighteen times greater than its normal output. This striking accomplishment has been achieved in two ways principally: (1) By a large-scale expansion of plant facilities, financed in part by the producer, and in part by the Navy Department; (2) By an elaborate utilization of the services and facilities of sub-contractors in every part of the country.

This one concern alone is now employing more than 250 subcontractors and suppliers spread throughout approximately 180 communities in 25 states. The dollar volume of work represented by these sub-contracts is 100 times the amount let out in the pre-emergency period. Nearly 60% of the total volume of work required for the production of an engine is thus derived from sources outside the prime contractor.

The enormity of this accomplishment cannot be comprehended from a mere recital of figures. It requires an understanding of the intricacy of detail that goes into the creation of a large-scale marine engine to appreciate the co-ordination of activity that is involved in an operation participated in by 250 concerns in widely separated parts of the country.

This is a demonstration of what can be done by an intelligent utilization of the services of sub-contractors. In its effectiveness it cannot be approached by any other form of the "spread-the-work" policy. Other methods have been attempted by the British, even to the extent of making it mandatory for a prime contractor to let out a stated percentage—as much as 50%—of the work to sub-contractors without regard to their availability or suitability to produce in an efficient manner. In the end, however, they have been forced to return to the method whereby the selection and control of sub-contractors is left to the prime contractor, with the Government rendering every possible assistance in discovering and publicizing new sources of supply.

The magnificent team-work which is evidenced by this one example is rapidly becoming the rule throughout all industry. Day by day our industrial strength is being forged more and more compactly into a coordinated mechanism, operating as a single unit for the attainment of a common end. Cooperation is the theme of the day and it is being demonstrated on every side in a great variety of ways. Recently the Bureau of Ships was confronted with the impossibility of securing a sufficient source of supply for geared turbine propulsion machinery which was required for a newly-developed type of naval vessel. It was determined that the design of the vessel could be altered to permit the utilization of a non-conventional type of reciprocating steam engine for which an available source of supply was discovered in Pennsylvania. The castings to be used by the Pennsylvania producer were to be machined by a sub-contractor in Virginia, but the latter lacked a certain type of planer required to do the job. With the assistance of the War Production Board, representatives of the Bureau of Ships located a suitable and unengaged planer in a plant in Kansas, and immediately undertook to have it made available for the use of the Virginia concern.

Limitations of space preclude any review of the multitude of instances which could be cited to illustrate the heartening fashion in which the various branches of industry are "playing ball." How so many concerns, capable of taking on war work, have cleared the way for assuming the jobs by passing their commercial work-loads on to other companies which lacked the capacity to undertake war production work for them-

(Continued on Next Page)

Navy Ship Building

(Continued from Preceding Page)

selves; how other concerns, choked to the bursting point with war orders for products of their own devising and development, have made their plans and techniques and general "know how" available for other concerns to get into production of the goods; the detailed recording of these, and the many other illustrations of industrial team play which are of almost daily occurrence, must be postponed until some future date. The sum total of these efforts may, however, be shortly stated as spelling the complete and final doom of the Axis Powers. Notwithstanding the fact that at the time it was originally set up the Navy's emergency ship-building program was felt by many experienced shipbuilders to be hopeless of attainment, in view of the shortness of the period established for the completion of a wholly unprecedented volume of construction, latest available reports disclose that in most of its aspects the program is well ahead of schedule. Nevertheless the remarkable progress that has been made to date will be as nothing compared to what will follow once our industrial machine gets into high gear. The shift is now very nearly accomplished and results should soon be forthcoming.

The Netherlands Navy Fights On

(Continued from page 43)

discussion whatever about the fact that when Java itself, the key-point of the great southern barrier, was threatened with invasion, there was only one thing for Admiral Helfrich to do. The Supreme Command had already decided to hold Java at all costs; and therefore the naval sacrifice was too great to prevent the islands from falling to the enemy. Forced to battle with a Japanese Armada conveying 60 troop carriers, Helfrich ordered Admiral Doorman to go out and meet a

force alarmingly superior. At that moment the Japanese had more than 100 warships in East Indian waters; and a large proportion of these was concentrated for the attack on Java. Nevertheless, Karel Doorman unhesitatingly sent up his grand signal; "I am going to attack. Follow me."

It appears that his daring was rewarded. For in the afternoon battle he undoubtedly, by amazing seamanship, punished the much heavier Japanese fleet severely.

Then fate took a hand. During that night the Allied cruiser squadron ran into what was probably a submarine flotilla, with the result that the two Dutch cruisers, including the flagship were sent to the bottom.

A defeat? Yes. But a glorious one! For not only did it show the stuff of which the Dutch Navy is made, but in its very nature inspired the Netherlands Kingdom to carry on, to maintain, until victory is won. The policy of great wars is not guided by the question of what appears to be more immediately profitable. Our own Dutch history as well as that of many great nations gives ample proof of this. A policy of great wars implies the courage to stand by the side of justice, no matter what the cost.

But the Dutch do more than merely stand. Just as Doorman sent his attack signal fluttering over the Java Sea; just as De Ruyter fantastically threw London into an uproar when he forced the boom of the Medway river and sailed up to Chatham with the same signal at his masthead; just as Boisot literally sailed a Dutch fleet overland to the relief of Leyden; just so will the Netherlands Navy continue to attack until the whole Kingdom is once again freed from the oppressor.

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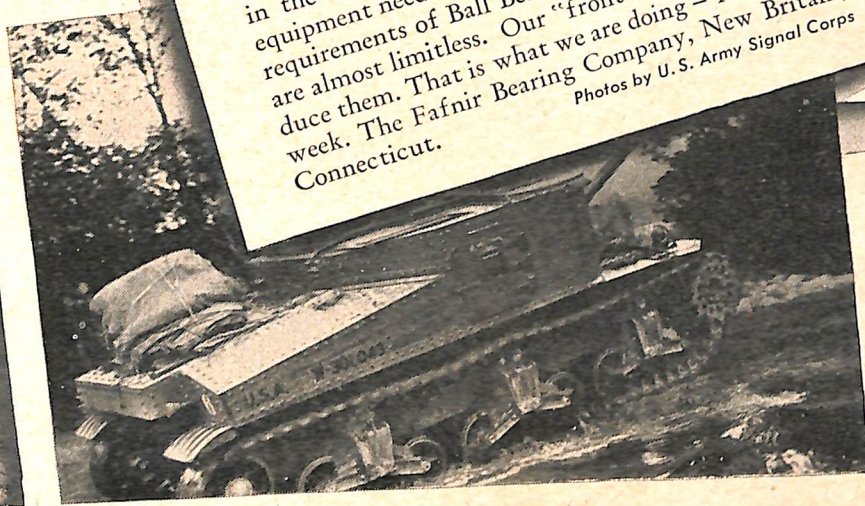
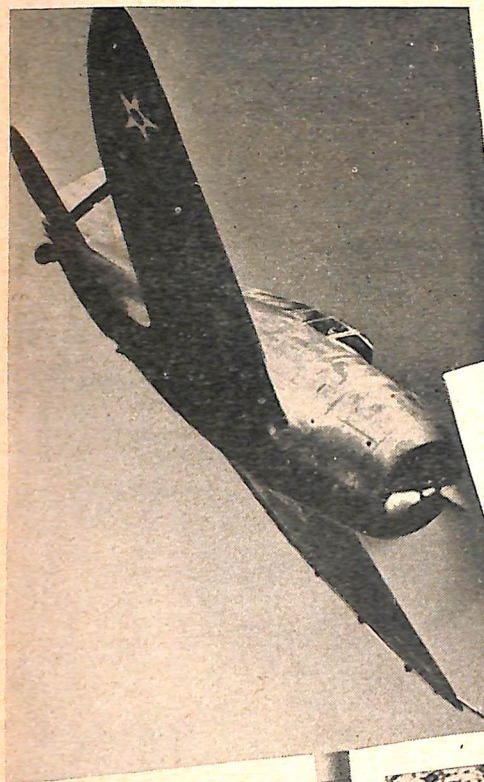
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Photos by U.S. Army Signal Corps



FAFNIR
BALL BEARINGS



(Continued from page 91)

requirement tests demanded of all midshipmen, greatly renewed emphasis has been placed on intramural competition now known at the Naval Academy as the Sports Program. It has long been recognized that athletes who are members of the regular varsity teams develop qualities of endurance and competitive spirit that are of the greatest value in meeting the hardships of war. The purpose of the Sports Program is to require that every midshipman become an active participant on some athletic team. It thus accomplishes an important mission by reaching those who are inclined to be physically inactive, and provides interesting competition whereby all midshipmen develop added stamina and quickened reflexes. This program is carried out during recreation hours under careful supervision. It requires over four thousand team members throughout the course of the year, over and above those needed for outside competition on the varsity teams. The Regiment being comprised of three thousand midshipmen, each one must become an athletic competitor at some time during the year.

Also included in this enlargement of athletic facilities is a 600-yard outdoor obstacle race. All midshipmen are encouraged to run this rugged course frequently, and to note their times and gradual improvement.

Being engaged in war of a truly world-wide scope, it is highly appropriate that the study of foreign languages be expanded accordingly. Seven languages are now offered for instruction at the Academy. They include Spanish, French, German, Portuguese, Italian, Russian and Japanese. Incoming midshipmen are examined for linguistic aptitude and interest, and are then assigned to the study of one of these languages, to be followed during their entire course. Prior to graduation every midshipman is offered the opportunity to qualify as a language interpreter or translator. Needless to say, such abilities are of inestimable value in meeting various situations on foreign stations.

The matter of aptitude for the service and the development of sound officer-like qualities of leadership and naval character is considered to be a most important function of the Naval Academy. While covering the entire scope of all midshipman activities, the responsibility for imparting these qualities falls principally on specially selected officers assigned to the Executive Department. Each midshipman is observed by senior midshipmen as well as by officers, and written aptitude estimates are regularly submitted at least once weekly to become a part of his midshipman record. From these estimates a remarkably accurate picture can be drawn of the inherent abilities of each individual midshipman who is then advised and instructed accordingly. The weight assigned to a midshipman's mark in aptitude for the service gradually increases from a relatively small factor during his first year, until his final year when this particular mark has a greater weight on his final multiple than any single academic subject.

While the qualities and responsibilities of the midshipman are constantly woven into every phase of a midshipman's life, the added emphasis of color and realism is brought to these qualities as well. This is done by bringing to the Naval Academy officers who have recently returned from the fighting fronts. Some of these officers are ordered to the Academy for duty, while others home on short leave periods are invited to address the midshipmen and to describe their experiences and observations in actual combat. The greatly added interest and lasting inspiration to the midshipmen by virtue of such contacts are immediately obvious.

The Naval Academy is much more than a training center. It must of necessity be a far-seeing educational institution where the finest young men obtainable from all the walks of American life are received to be molded and thoroughly indoctrinated for the purpose of becoming the naval officers of today and tomorrow. The immediate problem of the Academy

(Continued from page 90)

ent that by a reduction in the course of instruction from four to three years a greater contribution could be made to our war effort without sacrificing any of those things which have made West Point what it is to our Army and our people. This legislation was enacted by the Congress and became law upon Presidential approval on October 1st. At the present time, plans are being made to graduate the First Class next January and the Second Class in June of 1943. Thereafter one class will be graduated in June and one will enter in July of each year, and there will be only three classes (Fourth, Third and First) present at the Academy at any one time.

The legislation provides that this reduction of course is only for the duration of the war when it will return to its normal four year length.

This reduction in course as well as the flying training program has made necessary certain changes in the curriculum. These changes had been foreseen, and steps are being rapidly taken to make the necessary transition. During the past summer, all Cadets were put through a most rigorous course of field training with the regular subjects in the academic course—advanced texts based on current campaigns, augmented by lectures given by Army Officers who have returned from active fronts. Every effort is made to keep them informed of the latest developments of the war, both from a political as well as from a military standpoint.

In short, West Point is at war in every sense of the word. In fact, West Point is always devoting itself to the study of war. During the years of peace it is preparing for the next conflict just as it has been preparing for the present war since 1918. The graduates of today will not only be of great value as junior officers in the new Army, but they will be prepared and trained to assume positions of high command in the years that lie ahead. What conditions will prevail following cessation of the present hostilities can hardly be foreseen but the West Point Cadet upon his graduation from the Military Academy will be prepared to do his part in restoring the world to order after the hard-won peace and he will be ready to maintain that peace regardless of the cost.

Cuba's Position in the War

(Continued from page 23)

From the economic standpoint the Axis situation is not very good. The Cuban submarine campaign in the Caribbean, as well as the scarcity of ships and the restrictions surrounding exports from the United Nations.

(Continued from page 23)

The Armored Force

(Continued from page 95)

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President Roosevelt has said, we will oppose the enemy whenever and wherever we can find him. We are finding the part in this critical conflict, the Quarter-Master Corps makes this pledge: We will deliver the goods!

The Navy's Business

(Continued from page 88)

Supplies and Accounts. The time element in movement of oil by land and water for use of vessels and planes is as precious as the fuel itself.

Paper work has been reduced to the minimum in all of our far-flung activities. We encourage every short-cut that will not interfere with proper accounting for the property of the Government and the disbursement of its funds.

Supplying the Navy is big business. And, we naturally have turned to business for men to assist in this effort. Some are serving as commissioned officers while others are serving in civilian capacities. The Supply Corps Reserve officers have been commissioned from all sections of the country, selection being made on the basis of experience and ability in specialized fields. This group of officers includes some of the nation's foremost purchasing agents, marketing and commodity specialists, financial authorities and expert accountants.

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The Quartermaster's Role

(Continued from page 89)

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Many historians believe that only the breakdown of its supply system kept the Confederacy from winning the Civil War. Certainly the superiority of the Northern services of supply was definitely a contributing factor to the Union victory.

We almost lost the Spanish-American War with our supply-transport blunders; indeed, we stumbled to victory because our opponents blundered still more.

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Warfare

(Continued from page 102)

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When the war came, there were 56,000 licensed amateur stations in the United States; in 1914 there were about 3,000. In both wars, from the splendidly self-trained group of young men who operated them, the armed services of the United States have enlisted officers and men to direct and operate wartime radio to service the equipment, and to instruct recruits. From the amateurs have come some of the ablest leaders in the field of communications. America's far-sighted policy in encouraging the amateur experiment has resulted in the enlistment of many of them in the Signal Corps, the Navy, Merchant Marine, and Air Corps.

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Radio—Vital to Modern Warfare

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India's War Effort

(Continued from page 46)

leather goods is now valued at approximately 60 million dollars a year.

THE INDIAN ARMY

Even before the outbreak of war with Germany in Sept. 1939, India had sent reinforcements both to Egypt and to Malaya. The strength of the Indian Army at the time was approximately 170,000 Indian and 60,000 British troops. The Indian portion of the Army has, during the three years of war, been raised, by purely voluntary recruitment, to 1½ million. The recruitment figure, last July, touched the high figure of 75,000 and now averages 70,000 monthly. Indeed, the limit to new enrolment is set not by lack of volunteers but by shortage of equipment and of training staff.

At least 300,000 Indian soldiers have been sent overseas. Indian casualties in killed, wounded and missing, number nearly 90,000. Indian troops have fought in every theatre of war from Narvik to Singapore. In line of battle, in garrison, or watchfully poised for attack or defence on the battlefields of the future in Asia, they are to be found everywhere today from Cyprus to the borders of Burma.

A DISTINGUISHED RECORD

Some account of actual fighting by Indian troops may not be out of place. In December 1940, the battle of Sidi Barrain, which made possible General Wavell's first advance to Benghazi, was won mainly by the 4th Indian Division. The Conquest of Eritrea and Ethiopia was similarly the work of the 4th and 5th Divisions. Keren, the Eritrean fortress which the Italians had regarded as impregnable, was captured by Indian forces against odds of more than two to one. When Raschid Ali sought to deliver Iraq to the Axis, early in the summer of 1941, it was troops from India which successfully foiled his treacherous conspiracy. In

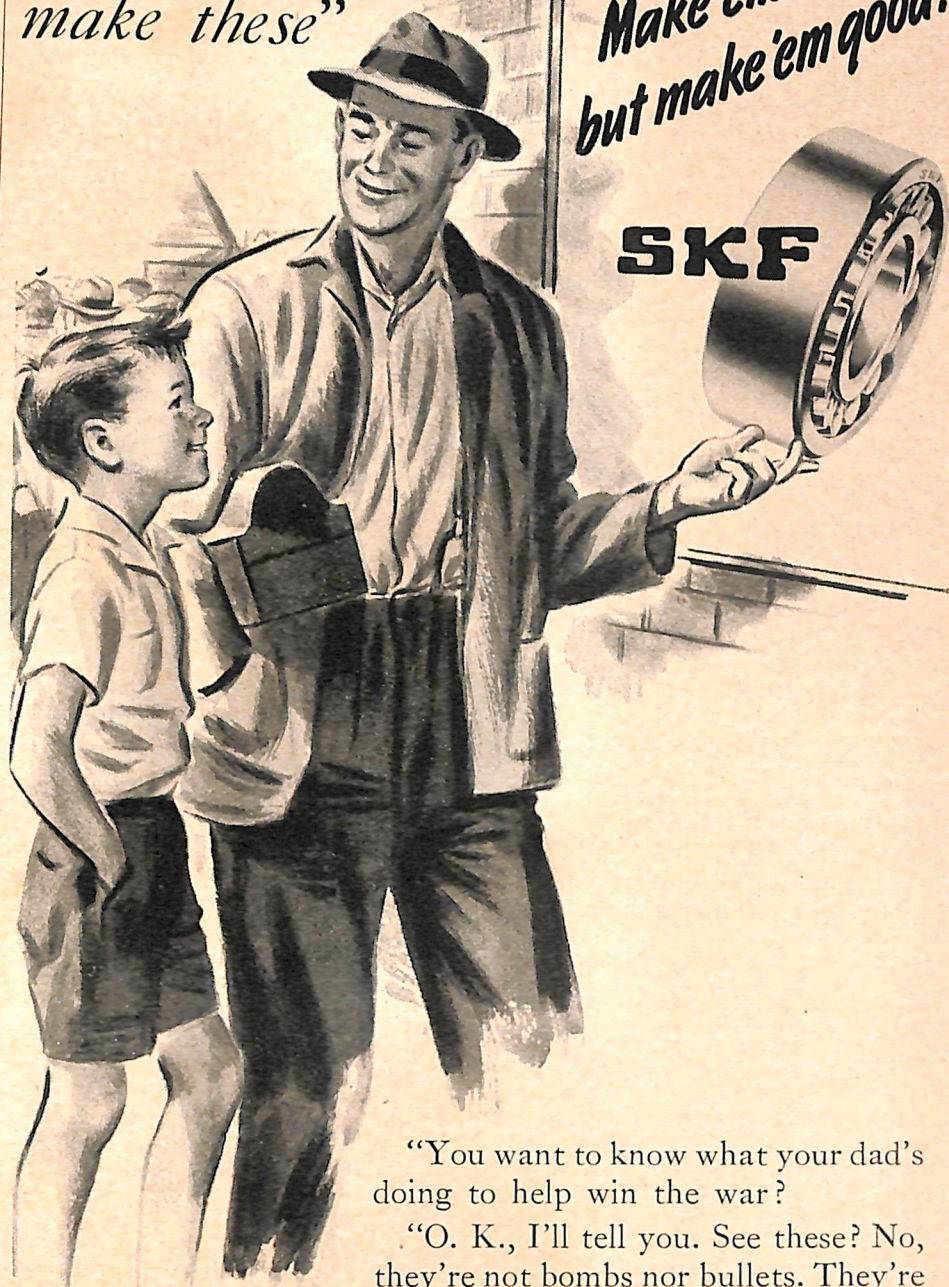
the following campaign in Syria, which was necessitated by the collaborationist attitude of the local Vichy authorities, Indian forces played an important part. Indian units formed a considerable proportion of the forces that defended Malaya and Singapore. When these territories had been lost, Indian regiments, along with British units, resisted the Japanese advance from Burma against India until the onset of the monsoon had made a Japanese invasion of the sub-continent impossible. Today, the 4th Indian division, seasoned by years of campaigning in Egypt, is in the vanguard of General Montgomery's forces now attacking Marshal Rommel in Libya. In Sir Archibald Wavell's phrase this is "a stirring and impressive story."

To quote the same high military authority: "On and off the field the discipline and soldierly bearing of the Indian troops, their good humour and kindness have everywhere aroused admiration." The Indian forces now in garrison in the Middle East or Eastern India or under training in their own country, are men of the same stock and the same fighting quality as those who have already distinguished themselves in the hard-fought campaigns of Eritrea, Syria and Egypt. As American correspondents in India have recently testified, Indian units have been receiving intensive training in jungle warfare so as to be able to beat the Japanese at their own tactics.

All that they need is modern equipment, aeroplanes, tanks and heavy artillery which India cannot manufacture. Equipped with these, they may be relied upon not only to hold India for the United Nations but, when the hour strikes, to roll back Japanese invaders from Burma and, ultimately, with the co-operation of their gallant Chinese allies and their American and British comrades, to ensure the final defeat of Japan. In courage, endurance, valour and steadfast loyalty, the Army of India is not unworthy to take its place in the far-flung fronts of the United Nations.

"My war job, son?

Why, I help
make these"



"You want to know what your dad's doing to help win the war?

"O. K., I'll tell you. See these? No, they're not bombs nor bullets. They're bearings!

"Know what helps a plane streak through the air at 400 miles an hour? Bearings! Know what helped that mosquito boat snatch MacArthur out of Bataan, while a thousand Japs were watching? Bearings!

"Yes, sir, son, bearings! You can't have modern speed without 'em. And I help make 'em. Over at SKF, along with thousands of other folks, and every last one of 'em wide awake to the importance of his job.

"We're making 'em fast, son, but we're making 'em good. They're rolling out from our plants—can't tell you how fast—and into tanks, planes, guns, ships and the machines behind these fighting machines.

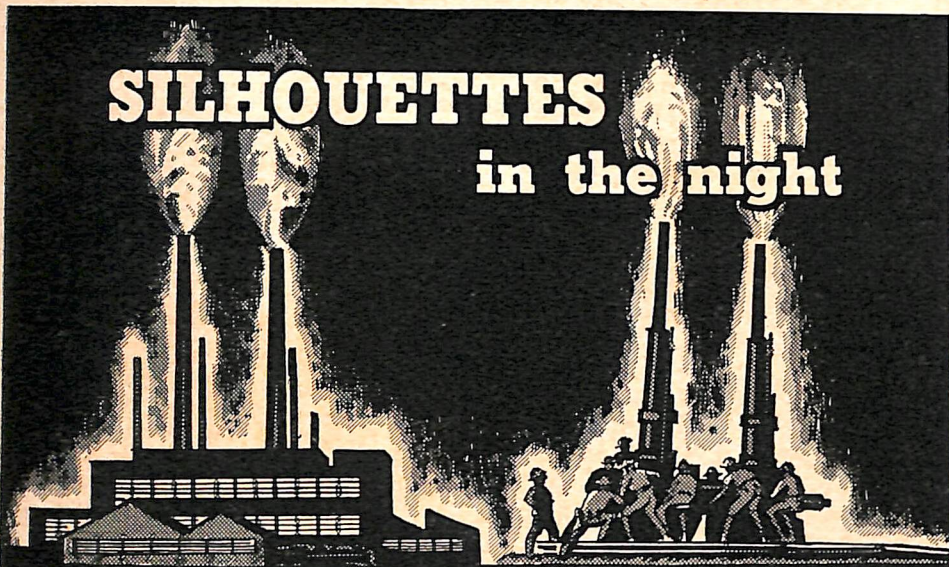
"What am I doing to help win the war? Come right down to it, my boy, old SKF is one of the reasons we're going to win."

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PHILADELPHIA, PA.

SKF
BALL AND ROLLER
BEARINGS

5110

SILHOUETTES in the night



Two silhouettes against the glowing sky, so similar in appearance and purpose, yet so vastly different in character.

The one is a factory, with chimneys belching smoke and fire, evidence of the productive energy beneath, working night and day to feed the cannons of our fighters.

Much more difficult a task, with many lives held in the balance, is that of the men behind the gun. Every flash, every rumble echoes a unity of purpose supported by the greatest single group in the history of the world. One object! Simply stated, but of colossal import. "Win the war!"

Two silhouettes against the sky. One is a symbol of the country's productive effort of which you and we are a part. We are pleased to place our facilities completely at the disposal of our government. We are proud that it is in our power to help the boys whose forms are outlined in that other silhouette.

"HANG THE LOAD ON HUBBARD HARDWARE"

HUBBARD AND COMPANY

PITTSBURGH . . . OAKLAND, CALIFORNIA . . . CHICAGO

Coast and Geodetic Survey

(Continued from page 86)

ing other highly technical services where needed by military authorities. Among these are special studies of the earth's magnetism in certain strategic areas. Results of seismological and magnetic studies and surveys being conducted, or made in the past, are also being utilized in preparation for war and defense work. Seismological studies have been particularly valuable in the construction of military and warplant structures.

In the Coast and Geodetic Survey's Instrument Division, there are experts with years of training and experience who have long been developing and servicing the intricate equipment used by the Bureau. These men are contributing greatly to the war effort. Army personnel have been given instruction here in the use and care of precision instruments. Special equipment for military purposes has been developed or perfected and hydrographic and geodetic instruments have been furnished for further adaptation by the armed forces.

Finally what might be referred to as personal services should be considered. The Coast and Geodetic Survey maintains a number of Field Stations, Processing Offices, Computing Offices, and Compilation Offices in various parts of the country. In charge of these are trained Coast and Geodetic Survey engineer officers who are always available, and are frequently called upon by military authorities for advice and assistance in local defense problems. These officers have also rendered many special services and have provided maps, charts, and other information.

The training and experience of Coast and Geodetic Survey officers tends to make them useful specialists in various military units. The nature and equipment of Survey vessels is such that they are of particular value to the Navy in coastal defense operations. The President, by authority of the Act of May 22, 1917 (U. S. Code, title 33, sec. 855) is empowered to transfer such personnel and equipment to the armed services in time of war, at his discretion. Up to the present time a total of fifty-six officers and nine ships have been so transferred to the War and Navy Departments. Some sixty other members of the Service, the majority of whom held commissions as reserve officers, have been called to active duty with the armed forces.

This brief summary merely touches the larger outlines of the Coast and Geodetic Survey's present part in the war. As the Bureau has had an important place in every major conflict involving the United States, from the War with Mexico through World War I, it is now proud to be taking its place again shoulder to shoulder with the armed forces in this mighty struggle to restore security and peace to the world.

Civilians in the War

(Continued from page 85)

can be broken. The critical housing problem, the wartime dangers to public health, the care of children whose mothers and fathers are doing war work, the education of the public in the meaning of this war, wartime food and nutrition training—all these extremely important matters are claiming the attention of Defense Councils in every part of the nation.

The hundreds of tasks performed by the U. S. Citizens' Service Corps are difficult to break into well-defined units but they demand the same degree of planning and hard work as do the task assigned to the members of the U. S. Citizens' Defense Corps. They claim the spare time energies of over four million Civilian Defense volunteers.

There is another very active division of Civilian Defense, the Civil Air Patrol. Its purpose is to mobilize the civil airmen of the United States, with their planes, equipment and auxiliary ground workers. Although national in chain of command, the state Wings, and their local groups and squadrons, answer state and local defense requests. Many members of the CAP have been called out from their local units to go on active duty assignments performed for the armed forces by spe-

cial task forces manned and equipped by these civilian volunteers. This work includes the anti-submarine coastal patrol and extended courier-cargo service. Many other types of missions are performed. The patrol flies in blackout tests and mock air raids; takes over disaster relief in flood or tornado areas; searches for lost aircraft; and acts as an aerial home guard.

This then is the nature of Civilian Defense in America—embracing both the actual protection of our cities and our shores and the mobilization of our civilian productive forces to meet the demands of modern war. It is indeed a tremendous program and has only just begun, for we must enroll more millions of volunteers to meet new dangers arising to the country—new dangers from possible enemy attack, and from interior disruption as well. As our wartime economy more and more displaces our already shattered peacetime economy the task of smoothing this readjustment will fall to the lot of civilians everywhere, civilians who are trained civilian defense volunteers and civilians who work in war industries.

The Navy Chaplain

(Continued from page 81)

One of the observed results of war is that people concerned give more thought to religion and spiritual matters than they do during times of peace. While our personnel has always been religiously minded our Chaplains have noted since "Pearl Harbor" a very marked increased interest on the part of all hands in spiritual and religious matters. Commanding Officers have urgently requested that Chaplains be assigned to their commands. Reports have come of religious services being conducted on ships to which Chaplains were not attached.—Commanding Officers and others leading the services.

Home folks, together with the pastors and priests in the communities from which our personnel have come, have followed our officers and men with their prayers, ever anxious to believe that their Navy is always mindful of the religious welfare of their loved ones. This faith has not been misplaced. The Navy is very much aware of this concern on the part of others, which is the counterpart of its own deep concern with regard to this very important matter. The benefits of religion,—the faithful and consecrated ministry of devoted Chaplains in sufficient numbers to minister to all, insofar as circumstances permit, is the plan and purpose of the officials of the Navy Department. The Navy is resolved that with the adequate aid of the Churches, no mother need fear that her boy is being neglected insofar as his spiritual welfare is concerned.

The Army Chaplain

(Continued from page 81)

to improve overall progress, efficiency and administrative management of office divisions, branches and lower units.

The Personnel Division processes applications from civilian clergymen desiring appointment as Chaplain, Army of the United States. Qualified candidates are recommended for appointment in the chaplaincy and for assignment to duty. A liaison is constantly maintained with denominational bodies in regard to ecclesiastical accreditation of all applicants and chaplains in the Corps. This division makes recommendations regarding the transfer of chaplains. Requisitions for chaplains to fill existing vacancies in the armed forces are given immediate attention and denominational representation is given consideration in such recommendations, circumstances permitting. Correspondence is carried on with chaplains in matters pertaining to official and personal problems. A volume of inquiries, widely diversified in origin, concerning the chaplaincy in general are answered daily. A constant contact is maintained with Service Commands and tactical headquarters relative to chaplains' professional matters.

In the Planning and Training Division a study is made of mobilization plans and policies as they are announced, and recommendations are made regarding the number of chaplains required. Training

plans and literature are prepared, revisions are made to meet changing conditions and to incorporate improved methods and suggestions which have been found successful in the field. The various activities of chaplains working in similar assignments are studied and technical circulars embodying the combined approved activities and procedures are distributed. Army regulations, field manuals, technical manuals, and proposed changes in them, affecting chaplains and their religious ministrations are studied and recommendations are made relative to their revision. This division supervises the curriculum of The Chaplain School and recommends purchases for the library of The Chaplain School.

The Planning and Training Division also maintains the Library of the office and keeps on display many current books of interest to chaplains. It studies and attempts to supply the professional needs of chaplains and administers the Chief of Chaplains' Religious Fund. Pertinent biographical and historical materials are collected and edited, information of a professional nature is furnished to chaplains and others, schedules of local religious activities for which the Office of the Chief of Chaplains is responsible are prepared, and the liaison necessary to carry out these activities is maintained.

The Miscellaneous Division gathers and prepares for the Chief of Chaplains material on the activities of the chaplains. It processes the monthly reports of chaplains and receives various, secular, and military publications. The processing of the reports includes the study, evaluation, analysis and consolidation of the facts therein recorded. The various publications are scanned to keep abreast with public sentiment. Releases to the press and radio are accomplished in cooperation with the War Department Bureau of Public Relations. Interviews are given to members of the writing and lecture fraternity.

The Air Forces Liaison Division performs duties incident to liaison and co-ordination of matters pertaining to chaplains' activities between Army Air Forces and the Office Chief of Chaplains.

Navy Relief Society

(Continued from page 80)

Relief duty, or an officer's wife, experienced in social service work, is responsible for interviewing all people who come for assistance. Each Auxiliary has volunteer visitors from among the officers' wives. A course of training, which concerns itself with social case work as adapted to Navy problems, is being prepared and each volunteer will be required to pass an examination before her services can be used. The course will be given to the District of Columbia Auxiliary starting November 9th and will be sent to all Auxiliaries as soon as it is in printed form.

A few of the larger Auxiliaries, in areas where a great number of Navy families have congregated, employ paid social workers to deal with cases beyond the ability of a volunteer. However, on the whole, the work is carried on by volunteers, which insures small overhead expenditures.

Many people ask what kinds of assistance come within the scope of Navy Relief.

The most common request made is for help with hospitalization costs. This is given in various ways. Several Auxiliaries have purchased endowed beds and others have contracts with local hospitals at low rates. Frequently, the dependent lives outside an Auxiliary area and here the Red Cross is called upon to secure adequate medical care at moderate cost. Loans, without interest, repayable by allotment, are made by the Navy Relief to meet these bills and gratuities are given when the amount is too great for the family to bear.

When delay occurs in the receipt of family allowances or allotments to wives and dependent mothers of men at sea, the Navy Relief gives or loans sufficient funds to meet the emergency. At the same time, the dependents are given instruction in the necessary steps to be taken to obtain the amounts payable to them monthly.

Sudden orders, which find the man

financially unprepared to move his family, are a common cause for distress. This is particularly acute when the orders involve sea duty and it is thought best for the family to live near relatives during this time. Again the Navy Relief assists in getting the family settled in a proper environment, thus affording the man peace of mind.

These are only a few examples of the many types of assistance given. They are as varied as human beings are varied, but in each instance the individual is urged toward his or her own solution of the tangle, which insures the preservation of self reliance and self respect.

Whatever the difficulty, the Navy Relief stands by to help—not in the spirit of charity—but rather as one member of a family rallies to the assistance of another member in time of trouble.

Army Emergency Relief

(Continued from page 80)

Commanding officers will assure themselves that there is urgent need for relief and that the amount allowed is not excessive. The financial condition and other pertinent circumstances of applicants will be investigated, if practicable, prior to extending relief. In emergencies, immediate needs will be provided for pending complete investigation.

Funds for Army Emergency Relief may be raised by entertainments or special events organized by Army Emergency Relief and featuring Army personnel. Prior authorization by National Headquarters, Army Emergency Relief, will be obtained in each instance. The number of benefits authorized will be strictly limited. The solicitation of prizes or cash contributions from persons outside the Army is prohibited in connection with authorized fund raising benefits and there will be no general solicitation among audiences beyond the collection of admission fees and normal program costs. Special events for which commitment was made before September 25, 1942, and which will take place prior to November 15, 1942, may be held without regard to the foregoing. Entertainments and other activities at Army stations under local auspices are authorized in the discretion of commanders concerned. Officers and enlisted men of the Army may secure membership in Army Emergency Relief through voluntary contributions but there will be no solicitation for military membership without prior approval of National Headquarters. Life military membership is given for contributions of \$100.00 or more. Military membership at large is given for smaller contributions. Financial aid will be granted on the basis of actual need whether or not recipients are members or contributors. Army Emergency Relief is permitted to accept entirely voluntary and unsolicited contributions from civilian sources other than War Chests whose public campaigns commence after the date hereof.

The Army Relief Society is affiliated with Army Emergency Relief for the period of the present war and six months thereafter. Collections for the Army Relief Society from Army personnel are suspended during this period. The Army Relief Society will continue to administer separately the cases of widows and orphans of Regular Army personnel now pending or originating prior to September 16, 1940, and such other appropriate cases as are referred to it by Army Emergency Relief.

The Army Air Forces branch is located in Washington, D. C., under the supervision of the Commanding General, Army Air Forces. It operates and distributes aid through its own echelons of command under policies approved by National Headquarters, Army Emergency Relief. To insure complete coverage without overlapping, the closest cooperation is enjoined between adjacent branches and sections regardless of the component which has established them. Commanding generals of service commands and Army Air Forces commanders concerned will assure themselves that the cooperation necessary to insure coordinated coverage is maintained between service command and air force sections in their respective areas.

South Africa and the War

(Continued from page 47)

pared to play in the war. The Union at first suffered from the fact that while expeditionary units from the other Dominions hastened to Europe, the South Africans were not seen in the United Kingdom and many people unthinkingly concluded from this that South Africa was not going to pull her full weight in the War. Actually South Africa's forces have been almost continuously in action since the middle of 1940 and the Union maintains armed forces in the field which, relatively, represent as big a contribution in manpower as that made by any of the Allied countries.

General Smuts correctly foresaw from the outset that it was only a matter of time before South Africa would be called upon to play an important role in the war on the African continent itself. For South Africa there were two vital strategic considerations—the safeguarding of the all-important sea route around the Cape, and the Axis threat in North Africa—a threat as closely directed at the Union with its rich natural resources as at any of the British States lying more closely under the shadow of Mussolini's former African empire.

For the protection of the Cape sea lanes and of her own long coast line South Africa created the Seaward Defence Force, recently rechristened as the South Africa Naval Forces. In cooperation with the Royal Navy, South Africa has maintained constant watch and ward over the waters surrounding her shores. The Union has as yet no navy of her own, but her small fleet of minesweepers, patrol vessels and examination boats took a big burden off the shoulders of the Royal Navy, the South African Air Force assisting with unceasing coastal reconnaissance work. Not only has invaluable work been done in Southern waters, but the Union also found it possible to send mine-sweeping flotillas to the Mediterranean where they have won high commendation from Allied commanders.

When operations commenced against Italian forces in Abyssinia and Somaliland the Union had in readiness in Northern Kenya the strongest and best-equipped fighting forces that had ever left her borders. The South Africans played a major role in that campaign and were the first to enter Addis Ababa. The Springboks, as the South African soldiers are called, displayed throughout the dash and initiative which marks the commando type of fighting with which South Africa has so long been familiar, and their rapid advance through some of the most difficult fighting terrain in the world should fall into perspective as one of the classic episodes of the war.

From East Africa the South African forces were transferred to North Africa where they have engaged in some of the bitterest fighting in the desert. The South Africans have had notable successes in the Middle East, including the capture at one stage of this ding-dong campaign of Bardia, Sollum and Halfaya Pass. They also had their setbacks, at Sidi Resegh and Tobruk. These have been answered by fresh streams of volunteers to join the army—for every South African in uniform is a volunteer—and the Springboks are steadily meeting every call that is made upon them.

The South African forces in the Middle East are more than expeditionary units. They represent a small but complete army in the field, with its own Air Force and all those ancillary units comprising an army in the field. More recently the South Africans have extended the scope of their operations and have participated in the occupation of Madagascar, and mention should not be omitted of the several thousand South African Royal Naval Reservists engaged in the war at sea, and of some 700 South Africans serving with the Royal Air Force in Britain. The South African airmen have won many awards for gallantry in this war and some of their names, including that of John Nettleton, the Augsburg V. C., have become household names in Britain as much as in the Union.

Nor should reference be omitted to the notable part played by South African women in the war. They are serving in

their thousands in the Women's Auxiliary Army Services and the Women's Auxiliary Air Force and many were drafted to East Africa and later to the Middle East. The batteries protecting South Africa's harbors are partly "manned" by women who are skilled artillerymen.

If South Africa has done well in the field she also has notable achievements on the home industrial front. Having due regard to her limited resources of skilled labor and her dependence upon America and the United Kingdom for certain specialized manufactures, the Union's progress in the industrial field during the past two years has been equal to the advance which, by peace-time standards, she would have made in 25 years. At the outset of the war South Africa had no great industries which could immediately be classified as being unnecessary to the war effort and geared down to give preference to more important work. Another serious drawback was that South Africa had no machine tool industry and was compelled to improvise when it laid down plans for the manufacture of all those war-time requirements which it could no longer import from Britain and the United States. But South Africa improvised brilliantly and the workshops of the Union are mobilized for war service under a Directorate of War Supplies which has a noteworthy record of achievement. The quantities and variety of armaments, munitions and other technical equipment that have now been produced for Union and Allied forces would have seemed a rather wild impossibility but for the fact that the task has been accomplished. The Union has also come to be known, quite rightly as the repair shop of the Middle East. Damaged ships have been made seaworthy again and hundreds of tanks and other armored vehicles that might have been rusting in the desert have been put back into effective service.

The spirit of the people in the factories and workshops that have to be maintained on a war-time basis has been one of sustained determination to meet the demands and needs of the hour. South Africa is no sleeping partner in this war but will continue to play her part in full in meeting the demands that may lie ahead and in the common task of the United Nations.

American Labor in the War

(Continued from page 52)

tion. With few exceptions, however, unions now are accustomed to settling such disputes by the use of the elections machinery of the National Labor Relations Board. In the 12 months from June 1941 to June 1942 the Board settled more than six thousand such representation disputes. It conducted 4,212 elections by secret ballot, or check of union membership records against company payrolls, and counted 1,067,037 valid votes. When a representative was selected by a majority of the workers involved, the Board certified the representative, and normally collective bargaining on established patterns followed.

Where workers have been discriminated against, or otherwise have been

the victims of anti-union practices, the National Labor Relations Board gives protection by serving as a court for the hearing of such cases. In the absence of machinery of this sort, again in many cases unions would regard themselves as under the necessity of resorting to strikes for their own self-preservation.

The National Labor Relations Board thus acts in cases of disputes over representation, and of charges of unfair labor practices by employers. The War Labor Board, on the other hand, deals with disputes over wages, hours, or other conditions covered by the terms of union contracts. Since both types of disputes are often involved in the same case, the two Boards work in close cooperation. The National Labor Relations Board cooperates also with the Army, Navy, and War Production Board by holding elections promptly where disputes arise affecting war production.

Good morale on the part of the workers is essential for the successful prosecution of the war. Increasing acceptance and use of the traditional procedures of collective bargaining is important to this end. The prompt settlement of disputes over representation and elimination of anti-union practices by government action reduces the danger of direct action by labor and promotes the constructive use of collective bargaining to remove causes of poor morale. The National Labor Relations Board therefore, because of its functions, is essentially a war agency, making an important contribution to the war effort.

The WAVES

(Continued from page 79)

of being given a chance to carry their share of the war load.

American mothers and their daughters want to join their husbands and fathers in making the world a place worth living in and they are willing to go anywhere or do anything they are called upon to do to achieve that goal. They are glad the Navy asked them to join a service they are honored to serve.

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The New World United For Victory

(Continued from page 72)

freedom than faced the Kaiser's Germany during the entire First World War.

Axis subversive activities have long jeopardized the liberties of the American continent. At inter-American conferences carrying forward the recommendations of the Rio Charter, the New World republics have taken steps to root out economic sources of the Axis fifth column and to end the aggressors' commercial penetration into the New World. Uniform methods for identification, registration and expulsion of Axis agents also have been worked out. That program, I might point out, is developing rapidly.

Especially during the past year have the other American republics turned their efforts toward supplying the United States and its allies with the sinews of war. Mobilization of the vast natural resources of the American continent has long bulked large in hemisphere defense plans. But the pressing need for more raw materials became apparent after Japan overran Malaya, the Netherlands East Indies and the Philippines. Shortages in rubber, tin, fibers and other materials have shown that even a nation as rich as the United States cannot operate as a self-sufficient arsenal of democracy.

The United States today looks to the other Americas for many of the strategic materials needed in our great war production program. The complementary role of the mines, fields and forests of the southern republics to the war industries of the United States is graphically illustrated by the following figures:

Each United States Flying Fortress bomber that rolls off the assembly line requires 30,000 pounds of aluminum. Each fighter plane requires 5,000 pounds of that metal. The principal commercial source of aluminum at the present time is bauxite ore, which we have imported chiefly from South America.

A heavy tank needs nearly two tons of

rubber. Rubber represents almost two tons of every 10-ton pontoon bridge used by our armed forces, and the raincoat of each United Nations fighting man requires two pounds of rubber. Add the rubber needed for tires for "jeeps," trucks and other motorized and mechanized equipment of the United Nations armed forces and we see that we have only scratched the surface of rubber requirements for the war effort.

The tropical Americas, particularly Brazil's Amazon Basin, can supply an important part of the rubber the United Nations lost in the Far East. The United States has made agreements with the rubber-producing countries of the hemisphere to expand their rubber production and to purchase all their exportable surplus for the next five years.

The other American republics also are cooperating wholeheartedly in other programs to harness the hemisphere's economic might to the war effort of the United Nations. According to the United States Army and Navy Munitions Board, this country lacks sufficient quantities of 14 strategic materials which are available in varying amounts in the other Americas.

More important in the long-range program, however, is the fact that North American technicians, including health and sanitation specialists, have been invited by their neighbors to the south to aid them boost production of metals, fibers, rubber and other materials.

Copper, nitrates, manganese, zinc, bauxite, lead and other metals from the southern republics are flowing to the United States war plants. Vegetable oils, fibers, mahogany, balsa wood and other materials also are reaching this country in quantities commensurate with available shipping space. In return, the United States has established a basic policy of sharing scarce goods, including steel, machinery and chemicals, with the other republics.

The economies of our southern neighbors are feeling the repercussion of war-

(Continued on next page)

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The New World

(Continued from preceding page)

time shocks. Until Pearl Harbor, the United States had been able to fill adequately the gaps in hemisphere markets and supplies caused by the loss of European trade outlets. Conversion of North American industries to war production and the shift of shipping from inter-American runs to transporting men and supplies to the fighting fronts have worked hardships on the other republics. But they are accepting these hardships cheerfully and realistically, firm in the knowledge that their sacrifices are helping to speed the day of victory.

The hemisphere's first year of war, therefore, has been marked by momentous progress in creating a powerful American front against Axis ambitions for world conquest. But the heights of inter-American achievement are still to be reached. The unity which the free peoples of the Western Hemisphere have attained to protect their freedom today will play an even more important role in the world of tomorrow.

The WAAC

(Continued from page 78)

officer candidates will come up through the ranks.

In addition to their backgrounds of civilian training, Officer Candidates get an intensive training program which includes all the basic courses as outlined for auxiliaries and also covers, leadership, mess management, property accountability, company administration, inspections, relationship of WAAC officers and Army officers and much of the ground taught in Army O.C.S. programs with the exception of tactics and weapons. WAAC Officer Candidate Schools are of two months duration. The successful candidates are commissioned as Third Officers, the equivalent of 2nd Lieutenant in the Army.

Their function in the field is to administer the welfare and discipline of the WAAC units in their charge, under the supervision of the Commanding Officer of the Post to which they are attached.

All members of the WAAC, officer candidate and basic auxiliary alike, have stood the test of review and inspection under the eyes of seasoned Army officers. They have realized that the step they take in joining the WAAC is not an easy one. They are aware of the seriousness of the adjustment they must make to the military way of going and of the brief and concentrated space of time in which they have to do it. They bring with them a will and energy which has won the respect of every Army officer who has cooperated in their training.

Today the Corps is close to 10,000 strong in enrolled members. They are women between the ages of 21 and 45 who have voluntarily enrolled for the duration to serve whenever and wherever they are needed.

Due to the rapid expansion of the Women's Army Auxiliary Corps as the result of increased requests from Army Commands for WAAC personnel to serve with them, a second training center has been activated. Some 85 hotels and apartment houses in Daytona Beach, Florida, have been leased to form this new training center which opens December 1. Because of this, WAAC units scheduled to go into the field were diverted for use as staff, faculty, NCO cadre, post headquarters companies, and station complement personnel for the second training center.

The work of the WAAC is not glamorous. Much of it is routine and unexciting. But the spirit of the WAAC is that of all good soldiers—the will to win. As they do their duties well with the commands they serve, they cannot fail to contribute the efficiency of added skill and numbers. They are strong-willed and fighting-spirited and they offer these attributes to the total effort we must have to win through total war and win to total peace.

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(Radio Tubes)



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Radiomarine Corporation
of America
(Marine Radio Apparatus)

Radio is the voice and ear of modern war.

Radio follows the flag and the fleet—locates the enemy—flashes urgent orders—safeguards the convoy—guides the bomber—directs the artillery—maneuvers the tank.

From submarine to flying fortress, from jeep to anti-aircraft gun, radio is on watch, always ready to speak and to listen—to give warning and to guide.

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The Merchant Marine

(Continued from page 68)

chine is now working equipment on an "around-the-clock" basis, a full seven days a week.

Compared with the last war, the picture for World War II is considerably different. To begin with, the alignment of nations involved has automatically charted a different course of action than that resulting from the circumstances surrounding the first World War. America today is fighting a multi-ocean war. Again, the great expanse of the present fighting fronts has made it absolutely essential that all tonnage, both new and old, be allocated to the best possible advantage for the over-all war effort, both from the standpoint of routing as well as loading.

The Maritime Commission's activities in operation and procurement, war risk insurance, vessel repair and maintenance and the issuance of ship warrants have been transferred to the War Shipping Administration, as a result of an Executive Order of the President issued on 7 February, 1942.

During the first World War, transportation, from a military standpoint, consisted largely of maintaining a 3,000-mile shuttle service to France. Today the supply lines are stretched to all continents in virtually every part of the globe.

Consequently, today's war is essentially a war of transportation, and now, more than ever, the meaning of the words "ships and more ships" is brought home to the people of America.

The War Shipping Administration is definitely making sure that every available bottom is being put to the best practicable use. In order to obtain a more direct control of shipping, the WSA recently requisitioned all American ships as well as those owned by American citizens and under foreign registry that had not already been chartered or acquired by the government.

Our shipbuilding effort is constantly gaining momentum. Our shipping operations, despite the present severe shortage of tonnage, are being expedited to the limit and as fully co-ordinated as possible with those of Great Britain and the other United Nations.

The Navy is giving merchant ships more and more adequate protection against Axis submarines and raiders.

We are headed in the right direction and, with proper future betterment of all factors involved, we will attain the goal of Victory.

Of one thing the nation may feel assured—the men who build and sail the ships of the Merchant Marine will not be found wanting.

The Selective Service System

(Continued from page 71)

by the armed forces for men—skilled and unskilled—drained increasing numbers of men from the available pool of men "fit for service" and "available for service."

Early in 1942, Secretary Stimson announced that the goal for the armed forces by the end of 1942 was 3,600,000 men in the Army, 400,000 in the Navy and 200,000 in the Marine Corps.

This would have indicated a total induction into the Army for 1942, by Selective Service, of 1,900,000 men—an average of 158,000 per month.

Actual inductions during the year have many times exceeded that figure and on October 13 Secretary Stimson, testifying before the House of Representatives Military Affairs Committee, estimated that the army at that time numbered 4,250,000 men.

The total was swelled, of course, by volunteer recruiting by the Army, Navy and Marine Corps.

For military reasons, the actual figures on inductions and the real size of our armed forces or on registration totals are not made public.

Despite the tremendous pressure of

greatly increased demands for men in essential war activities, and in our armed forces, the Selective Service System has met every demand for men in military service and at the same time deferred the men necessary in war activities.

In accordance with its original and fundamental charter, the Selective Service System succeeded during 1942 in "procuring men for our armed forces—of a number and kind and at the time and place they were needed with a minimum of disturbance to the social, agricultural, commercial, and industrial life of the Nation."

The enormity of the 1943 job which faces Selective Service was brought home with telling force and realism by Secretary Stimson before the House Committee when he estimated that it would be necessary to build the army to a strength of 7,500,000 men before the end of 1943, with the forces classified as follows:

Air forces—2,200,000;
Organized ground units—3,300,000;
Services of supply and related units—2,000,000.

The job ahead is a tough one but it will be done.

Navy Public Relations

(Continued from page 75)

lic to get the very latest developments in our sea warfare. The other is the less well defined but no less substantial head, representing aid and comfort to the enemy.

What constitutes aid and comfort to the enemy? First and foremost it is anything that reveals information concerning the condition and movement of our forces. This is the reason for the Navy's occasional delays in announcing ship losses.

The lapse of time is not, as some would have you think, based on a desire on our part to withhold news from the public. On the contrary we realize as well as anyone how vital complete coverage regarding the scope of battles won and lost is to the morale of those on the home front. But it must be remembered that when the enemy attacks our ships in the heat of battle the issue is often unknown to him. He cannot always tell whether his bombs or torpedoes have struck home, or just how badly damaged our units may be. If we were to issue communiques regarding the immediate fate of our ships it would indeed constitute aid and comfort to the enemy. We are constantly on the alert to guard against this, and it is a problem whose solution requires the co-operation of all concerned.

There exists today a second front few people know about. On that front men are fighting a bitter, hotly-contested battle. Their weapons are words, their goal—destruction of the enemy. In this new type of warfare we hold a tremendous advantage over the enemy. The great weapon in our hands is truth. For by telling the truth we hold the confidence and loyalty of the people of the United Nations. We have given them the bad with the good, and they have taken it in their stride. We have made the price of war clearly evident to them, and they have not flinched from accepting it. This loyalty will pay great dividends; for when the moment of crisis comes, when the chips are down, when the enemy's spirit flags and his lies stand naked before the world, then integrity will prevail.

No man can gauge this spirit or say when the turning point will come. But I firmly believe that when that day arrives the confidence expressed by the American people in their leaders, and in the statements made by those leaders, will prove a decisive factor in winning the war. Navy Public Relations will spare no effort to keep that confidence alive. It will be attained by simply telling the people the truth.

Training the Ground Forces

(Continued from page 67)

and intensified to the maximum, since operations overseas have left no question as to the importance of such troops.

The Desert Training Center has been established in southeastern California, under Major General Walker, for special training in desert fighting. Operations in Libya have emphasized the importance of such operations. A very large tract is available, giving as close an approach to a desert as one could desire. The exercises involve separation from all normal sources of supply for days and weeks at a time.

The Replacement and School Command is another large component of the Ground Forces. It is under Major General Bull, with headquarters at Birmingham, Alabama. It includes replacement training centers of the infantry, field artillery, coast artillery, and cavalry, together with the special service schools of those arms. Excepted are the replacement training centers and schools of the Armored Force, Antiaircraft Command, Tank Destroyer Command, and Airborne Command. An important element is the officer candidate schools; those of the Ground Forces alone are producing thousands of graduate candidates per month.

The foregoing description of the components of the Ground Forces may well raise the question of the status of arms such as infantry and field artillery. The new organization of the War Department, in its major aspects, does not operate by arms. An arm is a means of specializing officers and enlisted men in order that they may become more expert in their specialty. However, this compartmentalization for training is not always suitable for combat under modern conditions. The complexities of war today are so great that military forces now are being organized more for the task in view than according to arms. For example, armored and tank destroyer units could be organized from any arm, since tanks and anti-tank guns pertain to no one arm. The picture today calls for a minimum of

accent on the arms and the greatest possible attention to developing balanced fighting units, trained of course by arm initially, and then welded by further training into smoothly functioning task forces. Both the Germans and the Japanese have shown the way in this respect. We dare do no less, and we shall be smart to do more, in perfecting the task force idea, including not ground forces alone but air forces as well.

Lend-Lease

(Continued from page 73)

which, by ensuring political and economic justice for all, will produce a stable peace. Obviously, this will require international collaboration of the closest sort.

Such collaboration is now developing on an ever increasing scale. We must make sure that the forward steps taken under the stress of battle are not retraced when the fighting ceases. And in this connection, everyone interested in agreements recently signed by the United States with Russia, Great Britain, China, and other United Nations, because these agreements lay the foundation for continued peacetime collaboration.

What part the mechanisms of lend-lease and the Combined Boards may play, what influence their patterns may have in the post-war world, cannot now be foretold. But it is at least a hopeful sign that there are already in existence agencies with such great potentialities for united action.

The Independent Unions

(Continued from page 55)

Coast Alliance. So far this has not been done.

The Independents are not under obligation to the Shipbuilding Stabilization Committee insofar as the Interpretation and Administration of the Zone Standards in the industry are concerned. However, the Independents are not daunted by the uphill fight they are having in getting proper recognition and representa-

tion which they believe is their fundamental right under a democratic form of government.

The achievements in the Independent yards are remarkable in spite of the great influx of unskilled labor which has to be trained before it can be of any value. Production has increased tremendously.

The Labor-Management Production Drive Committee with its several subcommittees is on the job. Suggestions from the workers are pouring in to cut down waste, and countless man hours are saved through the efforts of Absentee and Lost Time committees in educating the workers on the necessity of being on the job every day. The Publicity committees are helpful along this line. Most organizations within the Alliance are publishing their own newspapers to keep the workers informed and urging them to greater efforts. The safety of the workers is being improved, sanitation problems are dealt with, and particular pride is taken

in the response of the workers in War Bond Purchases. Some of the yards have passed the 90% participation goal. This can only be accomplished where labor and management are in full accord with the minimum of grievances and prompt settlement of disputes. Working conditions in Independent yards have been greatly improved with the result of a higher morale among the workers, which in turn brings more production. Never in the history of the world has such a huge building program been undertaken; and American labor—free labor—in our shipyards, challenges the Axis powers. One can notice the ever-increasing tempo of production that will eventually defeat the Axis.

The East Coast Alliance of Independent Shipyard Unions of America fully realizes the terrific struggle ahead of us and stands ready and willing to make such sacrifices necessary in the successful prosecution of this war.

Battle Flags!



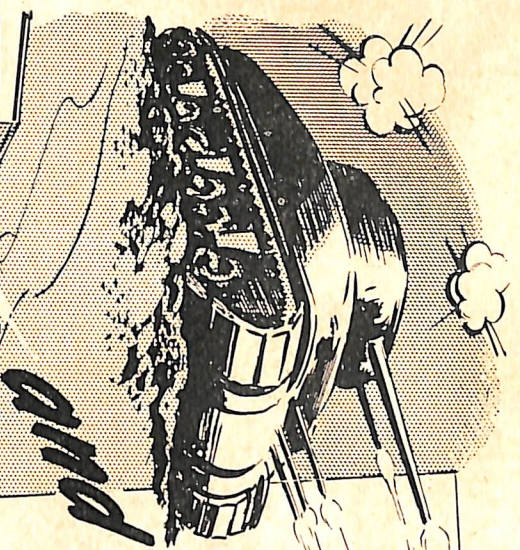
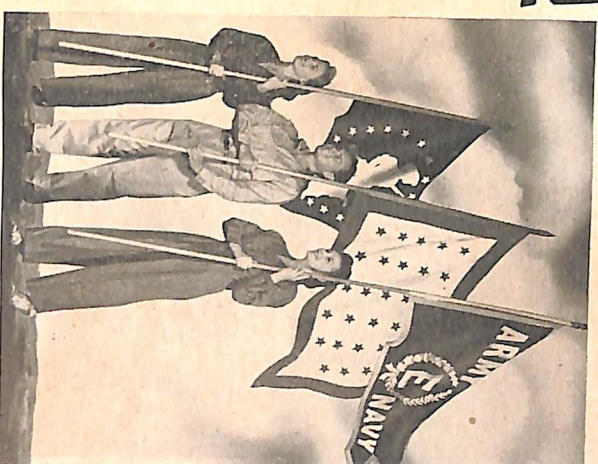
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A Great Invention

IN MAKING A LIST of the important inventions of history, it is fitting that those inventions which have contributed most to the progress of mankind should be given the highest rating.

Almost all these inventions, you will find, are important because they extend man's own limited powers.

The lens, for instance, in telescope and microscope, enabled us to examine the infinitely distant and the infinitely small, far beyond our normal eyesight. The steam engine and the internal combustion engine have multiplied our speed in travel on land and sea, and even taken us into the air over both. Gunpowder enlarged our muscles so that we could dig deeper into the earth; it lengthened our arms so that we could deliver far-reaching blows to our enemies.



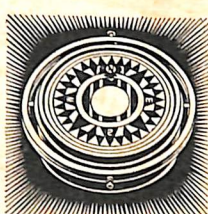
The telegraph, telephone, and radio have extended to the ends of the globe the distance our voices can carry and our ears can hear. Mechanical power in factory and field lets one man do the work of twenty, and has freed us from the slavery of long hours and arduous labor. Electricity brought light, and printing brought enlightenment. All were truly great accomplishments.



But there is another invention which belongs near the top of the list, even though it involves neither metal nor mechanics. It is insurance, one of the most powerful extensions of man's abilities.

More powerful than the lens, it enables man to pierce the veil from that world beyond and oversee the education of his children and the comfort of his widow.

The engine, and the speed which it gives us, are as nothing compared to a device which can create an estate in the few seconds it takes to sign your name to an application for life insurance.



Can you, even with your telephone, summon a thousand persons to help you rebuild your home as readily as a fire insurance policy collects the contributions of the many for the benefit of the unfortunate few?

Photography may capture and record the scenes of the day, but can it carry out your good intentions toward your family after you have "stepped out of the picture"? The compass helps in avoiding charted dangers, but of what avail is it in protecting you against the uncharted hazards of the future?

* By what other invention can you pay for an acci-

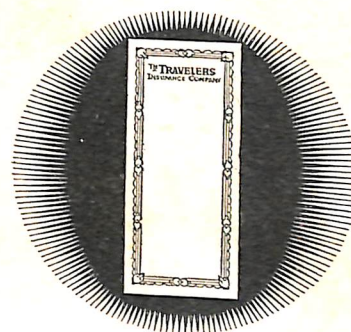


dent before it happens? Or buy time for the future, your own time for rest and recreation in retirement years?

Power itself could hardly have been used in the great plants of today unless insurance had made safe the investment of the owners.

Great projects could not have been undertaken without the service of insurance to spread the risk so that it would fall lightly on the many rather than heavily on the few.

And whenever you want this great invention to serve you in a bigger or broader way, let a Travelers agent or broker be your "consulting engineer." His training and experience can be of real service to you.



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Making the Enemy DIE

FOR HIS COUNTRY

VICKERS

**HYDROMOTIVE
CONTROLS**

The spirit of aggressiveness being shown by our fighting forces should be heartening to every American . . . and all Americans will want to do everything they can to help make the enemy "die for his country" in this war for survival.

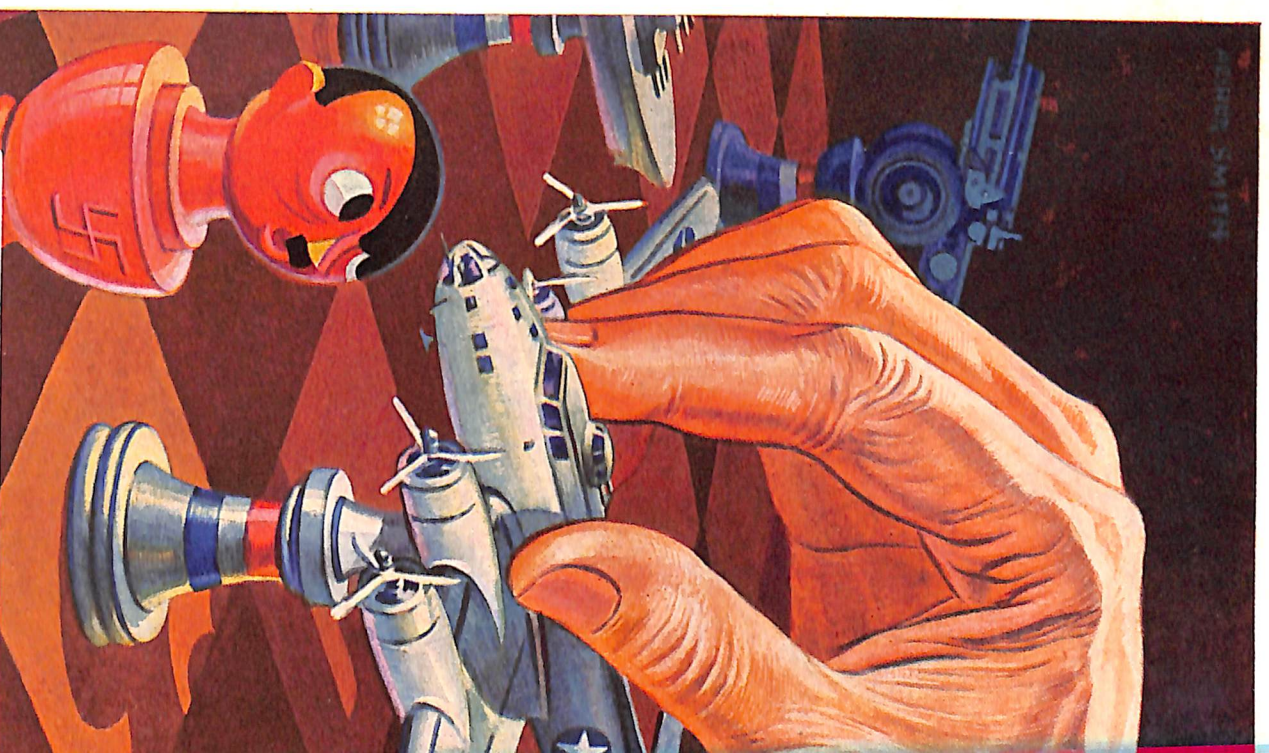
Vickers Incorporated is contributing to this effort on many fronts . . . on the sea, in the air, and on the land. Vickers Hydromotive Controls on our war tools of many types and on the machines which build them, have helped compel many an enemy to die for his country. These high pressure oil hydraulic controls are dependable, accurate, easy to operate, easily adjusted, insensitive to vibration and shock . . . reliable no matter how tough the going.

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The Second War

on the chessboard of global war is beginning—the offensive! But this could not have taken place until the first move—the production of the implements of war—was well begun. Management and labor, working together, are delivering tools of war in ever increasing quantities. » » A flood of planes, ships, tanks and other mobile units is pouring from American factories. Okonite is making many of the insulated wires and cables on which they depend for power, control and communication. Even the



BUY U. S. WAR BONDS Every Payday All Okonite